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REVIEW.

MISCELLANEOUS ARTICLES, ORIGINAL AND SELECTED.

REVIEW.

I.

An Inquiry concerning that disturbed state of the Vital Functions, usually denominated Constitutional Irritation. By Benjamin Travers, F.R.S. Senior Surgeon to St Thomas' Hospital; President of the Hunterian Society of London, &c. &c. London. 1826. pp. 556.

The object of Mr Travers, in this volume, is thus stated by him in his preface.

'My object in undertaking this inquiry, was to ascertain with more precision the morbid state indicated by the term " constitutional irritation," to investigate the causes most commonly productive of that state, the phenomena by which it is manifested, and the laws by which it is governed; and, from the comprehensive view thus obtained, to derive, if possible, some permanent pathological characters, which might serve as a guide to more correct notions of its nature, and more scientific principles for its treatment.' p. vii.

It will be recollected, that in one of our late numbers was contained a pretty full analysis of the doctrines of Sir Astley Cooper upon the subject of Irritation, which, he remarks, ' being the foundation of surgical science, is to be

carefully studied and clearly understood, before we can
know the principles of the profession, or be qualified to
practice it.' Mr Travers, therefore, has not exaggerated
the importance of the subject in devoting to it a complete
treatise; and the labour of the student will be richly repaid,
if, within the compass of a single volume, he can be taught
all which it is necessary, or desirable, for him to know with
regard to it. The author has unquestionably had great ad-
vantages for investigating the subject on which he writes;
and if, as he observes, it is one which has engaged his at-
tention ever since he has been occupied in the practice of
his profession, we have a right to expect from him a clear
and lucid exposition of it.

We must confess that neither in the work before us, nor
in the Lectures of Sir Astley Cooper, do we find a very
definite explanation of what is meant by irritation. Proba-
bly it is a term not used in a very precise way by any
body, but is one of those which have been employed so
often and so long, that we seem to have a clear idea
of what they signify, although in reality we have but a very
loose and general notion of the meaning we intend to con-
vey by them. There are many such words in use with re-
gard to all subjects, and more particularly, perhaps, in me-
dicine and surgery, from the uncertain and indefinite nature
of the very subjects to which they relate. We do not
mean that, in a practical point of view, the doctrines of Sir
Astley, and of Mr Travers, are not sufficiently intelligible. It
is not difficult, by a careful perusal of their writings, to un-
derstand sufficiently well the principles which they lay
down, and the practical lessons they teach; and yet it is,
after all, difficult to say decidedly what irritation exactly
is, and how it is to be distinguished in definite terms from
other affections. We shall endeavour to illustrate this re-
mark as we proceed.

The first chapter of the work is 'on the influence of
constitution in modifying the effects of local injury.' Mr
Travers first considers irritability as a principle of health.
It will be well to quote his account of it.

' Every part of a living animal has its peculiar function, to the performance of which it is incited by an appropriate stimulus. Its susceptibility of the impression of such stimulus, is denominated its irritability. If an organ, perfect in respect of structure and nourishment, be insusceptible of its stimulus, it is devoid of irritability; if the organ be imperfect, its irritability and function will be imperfect. This property is not confined to any particular form of organization, as nerve, muscle or blood-vessel; it exists in every organ, simple and compound. It is possessed, however, in unequal degrees by different organs, and even by distinct parts of the same organ. It is not in the ratio of sensibility, nor vascularity, nor muscularity, nor any particular endowment, but according to the importance of the texture or organ to the functions of life.' pp. 1, 2.

It will be perceived, that Mr Travers uses the word in the sense usually affixed to it by English writers, and means by it the same property as that which was called by Bichat, ' organic sensibility.' Its possession by any organ is indicated, not always in the same way, but in a manner determined by the nature of its function. Thus in the stomach it is manifested by the digestion of food, in the liver by the secretion of bile, in the heart by its regular contractions, and so of the other organs. Even to the organs possessed of a peculiar specific sensibility, irritability is necessary in order to the exercise of that sensibility and the production of the consequent sensation, as in the eye and ear.

Irritability, though essential to life, is not life itself, nor does it terminate at the same moment. It continues for a limited period in organs whose connexion with the trunk of the nervous system is cut off; and also in animals deprived of life, as is shown by the artificial process of respiration carried on in decapitated animals. This, however, according to Mr Travers, does not warrant the inference that irritability is a quality essentially resident in organs, distinctively from that system of which they form a part. The irritability of every part is derived from the vital processes taken as a whole, and, although it is only gradually parted

with after death, so that for a certain time stimuli applied to particular parts produce their accustomed effects, still they have no greater stock of this property than they originally received from the system itself.

Mr Travers next considers the *morbid* state of irritability, and it is to be remarked, that in the section devoted to this subject, he uses generally the simple term irritability, instead of the compound one morbid irritability, which is the title of the section. Thus he speaks of an irritable stomach, instead of a morbidly irritable stomach: he commends and adopts Mr Hunter's definition of irritability, 'over-action to the strength of the parts'—although this is obviously incompatible with his previous account and definition of it, which we have already quoted. This we mention merely as an illustration of the vagueness and looseness of the language used with regard to this subject, by the present author as well as others. Nothing could well be more inconsistent than the adoption of this expression of Mr Hunter by Mr Travers. He defines irritability, the susceptibility of a part to the impression of its appropriate stimulus. How this can also be over-action to the strength of the parts, is hard to conceive, even if we overlook the omission of the epithet morbid. For then it only becomes a morbid susceptibility, which, although it may induce, can never be, over-action; the term being used only to imply a power, and not an action. We do not accuse Mr Travers of any deficiency in clear ideas on this subject. We only wish to illustrate the extreme inaccuracy in the use of terms, which this work too often exhibits.

Mr Travers illustrates in this section, the different modes in which morbid irritability exhibits itself; its connexion with sympathy, and the nature of what is called an irritable habit. The importance of taking into consideration the constitution of patients, in this respect, is very well and fully illustrated. There is, perhaps, nothing more important in the practice of surgery and physic, than the power of being able to decide, from the character of a man's constitution, how he will be affected by injuries or by diseases, and how

he will bear the operations or the remedies necessary for their removal. It is difficult to do this, where we have been acquainted with the individual, and have had an opportunity of observing the operations of his system; but it becomes vastly more so, when we are forced to judge merely from general external indications, and from present symptoms.

'It is scarcely necessary,' says Mr T., 'to illustrate the influence of an irritable temperament upon the consequences of casual injury or disease. Practically, we all know it well. We say, "such a person would be a bad subject for a compound fracture;" and whoever has had opportunities of watching several subjects of compound fracture under treatment at one and the same time, well knows the import of this phrase, and that the greatest degree of mischief is often accompanied by the least constitutional disturbance, and for this reason is soonest and most perfectly restored. The first few hours will enable an experienced observer to determine, whether the subject of a serious injury or operation will do well or otherwise. How vastly different, in different individuals, is the inconvenience attending such minor derangements as a boil, an enlarged gland, a whitlow or a simple ophthalmia. In some the constitution seems ignorant of the affair, and the individual pursues his ordinary occupations. In others, the whole system sympathizes; the spirits are ruffled; the nights are restless; the appetite fails; the pulse acquires an undue bound; and the white tongue, the creepy chilliness, the lassitude, and slight erratic pains of symptomatic fever are present.' pp. 15, 16.

These remarks are followed by many cases, illustrating the serious consequences which arise in certain constitutions, or in persons under peculiar causes of irritation, from circumstances which would commonly seem totally inadequate to such an effect. Cases, for instance, of a man dying on the table during the steps preliminary to an operation for strangulated hernia; of another, during the operation for femoral aneurism, who was supposed to have only fainted; of death at the conclusion of a severe operation; or at the moment of transition from severe pain to ease, as happened to a man who had suffered great agony for several days

from a thecal abscess under his thumb nail, and who died as soon as it was opened.

Among other remarks upon the influence of various circumstances in modifying the effects of injuries, Mr Travers has the following, which will compare well with the results of some, at least, of the experience of all practitioners in this country.

'Of all classes of the working community, the draymen and coal-heavers, and the multifarious tribe of gin-drinking labourers of London, are the most unfavourable subjects for severe injuries and sudden attacks of acute disease. A pure stimulus, as that of alcohol, contains little nutriment, and having, when taken in habitual excess, a constant tendency to incapacitate the organs of digestion, impairs, and at length destroys, appetite. Malt liquor, when taken in such excess as to form the chief support of life, operates in the same way upon the digestive organs; but its stimulus being less potent, as well as its nutrient matter considerable, its effects upon the constitution are less obvious; under ordinary circumstances, perhaps, less injurious. Yet no description of patients fare worse than brewers' servants, under the severe casualties to which they are exposed. They struggle with a morbid plethora. The debauchee of high life levels, in respect of constitutional strength, with the low drunkard of all denominations; and both require a mode of treatment under severe injury, the very reverse of that which is adapted to the man who, from his occupation and habits, labours, when disease overtakes him, under what may be termed a nutrient plethora; for while the latter will be infinitely benefited by full blood-letting and other means of reduction, wine and opium can alone save the former.' pp. 27, 28.

Certain natural states, such as lactation and pregnancy, have an unfavourable tendency upon the female constitution in respect to the endurance of injuries or operations. Organic diseases of any kind, as of the uterus, the liver, the kidney, &c. although not themselves alarming, indispose the constitution to bear injuries or operations well. The state of full health is well known to have an unfavourable effect upon the result of some operations; and the reduction of the system consequent upon local disease to have, on the other hand, a favourable effect, when not permitted to go

too far.   Continuous inflammation is most frequent in per-
sons who incur injuries and undergo operations in full
health, and sometimes induces fatal consequences; as the
amputation of a stiff finger, submitted to merely as a matter
of convenience, and the removal of a small tumour from
the scalp, in perfect health, have been known to occasion
death.   Mr Travers refers to the practice of Mr George
Young, who was accustomed to impose restraint upon his
patients before the performance of operations requiring con-
finement, with excellent effect.   The following is an illus-
tration of his practice in his own words.

 ' A healthy carman came under my care, with a loose cartilage
in the right knee joint.   It had several times occasioned him to
fall suddenly, and he was very anxious to submit to an operation
to get rid of it.   It appeared to me desirable to accustom him, be-
fore the operation, to the reduced diet, rest and restraint, which
would be necessary after it.   He accordingly kept the house.   On
the second or third day of his confinement, I put on the roller and
bound on the back splint, exactly as I intended to do after the
operation, to keep the limb perfectly steady.   This confinement
of the limb occasioned a restless night, some fever, a whitish
tongue, a quickened pulse, a little headach, spare and high-coloured
urine.   He was very unwilling to continue the bandage and splint,
to which he ascribed (and justly) all his constitutional disturbance,
and the utility of which, prior to the operation, he could not at all
comprehend.   This circumstance, however, forcibly suggested to
me the importance of accustoming him to restraint; it was there-
fore continued; the excitement which it had produced gradually
subsided, and when I found that the bandage no longer occasioned
any irritation, I performed the operation.   Not one untoward
symptom arose; the constitution was not in the least ruffled, and
the wound healed by the first intention.' pp. 37, 38.

   Chapter II. is on the effects of local injury on the consti-
tution.   Irritation is that state, produced by an extraordi-
nary excitement of the irritability either of a part or of the
system ; it is, therefore, either local or constitutional.

 ' The phenomena of irritation are chiefly displayed in the ner-
vous system, and it is thus distinguished pathologically from inflam-

mation, which belongs to the vascular. Their relation is as intimate as that of these systems, of the extraordinary actions of which they are the results. As the causes and degrees of excitement are various, so are the signs and modes of irritation. Inflammation has been sometimes considered a healthy, because a healing action; this, though not a strictly logical, is an intelligible phraseology. In the same sense, the minor degrees of irritation also frequently serve a salutary purpose, and conduce to the preservation of the system. I object to the term irritative fever, as synonymous with irritation, because irritation and fever, are, in their nature, as distinct as irritation and inflammation, although their reciprocal affinities are as intimate and complicated as those of the nervous and vascular system.' pp. 39, 40.

Local irritation is demonstrated, 1. 'By an alteration in the habitual and proper sensation or action of a part.'   2. 'By pain unattended by any other sign of inflammation,' as in the case of colic, of the stone, of some species of headach. 3. 'By inflammation. When local irritation is acute and permanent, inflammation ensues, which is proportioned in degree to the severity of the irritation and the habit of the patient.'

Local irritation may gradually subside, and then terminates in resolution. It may terminate also in local inflammation. That is, when severe and continued, it may provoke the act of inflammation, and thus 'lose its independent character.' This does not agree perfectly well with what is said just above, that local irritation is demonstrated, that is, its existence is indicated, by inflammation. It is inconsistent to describe the same state as both a sign, and a termination, of another state. If inflammation is a consequence of irritation, which is what Mr Travers really means to say, we can hardly regard it also as a sign of irritation, or as demonstrating the existence of irritation.

Irritation terminates also in constitutional irritation, 'which is indicated by a propagation or extension of the irritation to the great sources of nervous energy, and from them to all parts of the system. The constitutional irritation thus set up is direct or reflected; it exists in various

degrees, and exhibits very multiform and complicated phenomena.'

The section on constitutional irritation begins with this sentence :—' The irritation which arises from injury or inflammation, when it passes from local to constitutional, becomes immediately hazardous,' &c. Here, according to the language of our author, inflammation, which he has before considered as a sign, and then as a consequence, is now regarded as a cause of irritation, first local, and then passing from local to constitutional. This is another example of that extreme looseness, with which the term irritation is employed.

Constitutional irritation is of two kinds, direct and reflected. We give the distinctions between them in the language of our author.

' I mean to imply, that the first is wholly and immediately derived from the part, commences and is identified with the local mischief, and the constitution has no share in its production. The second, on the contrary, originates in a peculiar morbid state of the constitution, to which the injury or inflammation has given birth, or it may be, previously existing. The first is truly symptomatic, never originating spontaneously, and being immediately induced by the local irritation, is capable of being essentially mitigated or arrested by its removal. The second is occasionally purely idiopathic, and being oftener the cause than the effect of the local action, is seldom influenced by local treatment. In the first, the local appearances are conditions depending on local causes; in the second, they depend on constitutional causes. The symptoms characterizing direct constitutional irritation, are, in the nervous system, rigor, delirium, convulsion, coma; in the vascular, the fever of phlegmonous, suppurative, ulcerative and gangrenous inflammation. Those which belong to reflected constitutional irritation, are, in the nervous system, epilepsy, tetanus in all its modifications, and other anomalous forms of spasm, mania, &c.; in the vascular system, the fever accompanying scrofulous and carcinomatous inflammation, erysipelas, carbuncle, &c. I deem it no objection to a division of this sort, that the parts are so blended and interwoven as to render the outline here and there obscure, or even

imperceptible; it is a circumstance unavoidably resulting from the nature of the subject. * * * I am quite prepared to admit, that cases are of no uncommon occurrence in which after an interval the reflected supervenes upon the direct irritation; which may, therefore, be regarded as examples of mixed irritation, the part and the constitution acting and re-acting alternately on each other.' pp. 47—50.

Several contingent circumstances exercise a considerable influence in the production of constitutional irritation by local injury, viz. 1. The texture of the organ injured. 2. The description of the injury. 3. Its magnitude. 4. The subject of it. The degree in which the constitution sympathizes directly with an injury at the moment of infliction, is by no means a measure of the constitutional irritation, which is sooner or later to follow. The direct sympathy is proportioned in activity, and in degree, to the sensibility of the injured part; but injuries of parts of minor sensibility and low organization, induce the highest and most alarming degree of constitutional irritation. We cannot follow Mr Travers through his very clear and satisfactory illustration of the influence of these several circumstances. We do not perceive, that he has placed the subject in any new light; this we are not to expect; but he certainly exhibits himself to great advantage as a man of sound practical views, and of careful observation.

Chapter III. consists of examples of direct irritation of different kinds.

'The symptoms of direct irritation indicate a depression or failure of the functions essential to life; either pure and progressive, or marked by alternations of excitement. The first, prostration without re-action, supervenes upon a degree of shock so intense as to destroy the irritability of the vital organs. The second, prostration with excitement, is the result of a less abrupt or intense degree of shock, and indicates a greater degree of vital power, the excitement being a partial evidence of the unexhausted irritability of the vital organs.' p. 64.

The causes of this condition are several :—1. Sudden, extreme and unremitting pain, and certain affections of the

mind co-operating with bodily disease.   As instances of the
effects of pain in producing death, Mr Travers adduces the
cases of women who perish soon after parturition, when it
has been difficult or protracted, or even sometimes when it
has not.   We cannot agree in attributing death in these
cases to the pain, properly speaking.

Where ruptures of the stomach, gall and urinary bladders
are accompanied by very severe pain, death takes place much
sooner, than where it is less intense.   Some poisons seem
to produce death, principally by the pain they produce.
The effects of pain will, no doubt, be very much modified
by the nature of the part, by that of the exciting cause, by
the temperament of the person injured, and by the state in
which the constitution is, when attacked by it.   Pain in ex-
cess, and constantly continued, so exhausts the principle of
life, that after its endurance for a certain period, the slight-
est additional shock proves fatal.   But when periodical, as
in tic douleureux, it can be endured for a long time.   The
first effect of intense and unremitting pain, is increased ex-
citement of the vascular and sensorial systems.   But this is
very transient.   The pulse becomes small, tremulous, and
irregular, or fluttering; the countenance becomes relaxed,
hollow, and ghastly; and a state of stupefaction and indiffe-
rence to surrounding objects announces the state of exhaus-
tion.   Where the pain depends upon, or is accompanied by,
inflammation, the stage of exhaustion comes on more slowly.
Sometimes an injury of extreme severity produces a direct
prostration without re-action.   A large loss of blood at the
moment of the injury, favours this result by cutting short
the first stage.

Affections of the mind also frequently co-operate, in a
striking manner, to produce the same effects.   Instances of
this sort are found in those cases where a strong presenti-
ment of the fatal issue of an operation seems to bring about
its own fulfilment, although there is really nothing in
the operation itself, or in the individual submitting to it, to
render such an event likely.   Two cases are related:—one
exemplifying the effect of an apparently slight injury; the

other of an operation for lithotomy, occurring in persons who had formerly been insane. The first, was that of a man, who had simply sprained his ankles. The swelling and pain in them had been relieved; but about two days after the accident, he was seized with vehement delirium, attended by hard and quick pulse. The usual remedies were employed, but he died at the end of three days from the accident. This man was a spirit drinker, and had been subject to temporary fits of mental derangement. Probably most American practitioners would recognize in this, a case of delirium tremens; and there are few, who have not seen analogous instances of sudden death in such subjects with such symptoms, from very slight causes. The second, was that of a young man, who, after the operation for the stone, shortly became very animated and in high spirits; this state of mind passed into that of delirium, and he became so violent as to render the use of the strait waistcoat necessary. He died forty-five hours after the operation.

2. Injuries and operations of various kinds are also causes which frequently produce this state of constitutional irritation. Burns produce it in its most aggravated form. Of these, the instances are unhappily too familiar.

'The first three days,' says Mr Travers, 'include a period of imminent danger in these casualties. When this period is past reaction may be considered as established, and speaking generally, the injury has nothing more in its character peculiar. Infants are sometimes suddenly attacked, and carried off by convulsions, as late as the fifth day, after re-action is fully established; but this is rare. If, on the contrary, very aged, or from any cause infirm, the patient may fall a victim to the process of sphacelus, a week or ten days subsequent to the injury,' 'or after the separation of considerable portions of disorganized cutis, the patient may sink exhausted by the drain of a very extensive suppurating surface; or, from the same cause, become the subject of a confirmed hectic, terminating in pulmonary consumption.' 'In a case of scald, in which the superficial extent of the injury was almost equal to that of the body, and the cuticle, though raised into vesicles, was very

partially removed, I have seen a sudden gangrene take possession of the injured surface on the sixth day, and carry off the patient, an adult, who had escaped the severer symptoms of direct irritation.' pp. 100, 101.

It is difficult to determine, why this state of fatal irritation should accompany some cases and not others; and why they are occasionally present and fatal in less adverse, and absent in more favourable circumstances. It is probable, that the true answer to this inquiry is, that a variety of circumstances contribute to this result; and that the age, sex, and constitution of the patient, the mode, extent and situation of the injury, and the very important nature of the functions of the injured texture, all have a share in producing it.

‘ In some instances pain may be added to the list of aggravants, but this is not a description of injury, in which pain extinguishes life. On the contrary, I should say that in burns, it is a good symptom; the complaint of pain, in the fatal cases, is remarkably disproportionate to the mischief, or at least it disappears early; and it is a favourable sign, where the continuance of it seems to demand the use of opiates. The early subsidence of complaint, unwillingness to be disturbed, apathy approaching to stupor, as if the scale of sensibility had sunk below the point of pain, is invariably a fatal symptom. Continued shivering is an ill omen. The failure of the pulse, and the consequent coldness of the extremities, with a livid hue of the transparent skin of the cheeks and lips from congestion in the capillaries, drowsiness, with occasional muscular catchings, are sure prognostics of death. The disposition to coma is characteristic, and invariably occurs in a marked degree, even if no opium be given. The respiration is light, scarcely audible until the pulmonary circulation, failing from the diminished power of the heart, congestion takes place in the capillaries of the lungs; but this does not happen till long after the same state has pervaded the system. Finally, laborious breathing and stertor ensue, and the patient expires in an apoplectic coma, with or without convulsions.' pp. 106, 107.

The faculties of the mind, in these cases, are remarkably preserved, although a strong external impression is required

to rouse them. The state of the patient, after the first
sensations of the injury have subsided, is compared to that
of a person stunned by a fall, or stupified with liquor as
much as can be, without actual suspension of sense. There
is found after death, fullness of the veins of the brain and
membranes, and effusion between the arachnoid membrane.
But these appearances are not of so much moment, as they
are so frequently met with in the bodies of persons who die
rapidly. The proximate cause of death, in the opinion of
our author, is ' a species of concussion, functional, not orga-
nic, by which the brain is deprived of its influence over the
organ of circulation ; for the symptoms of cerebral disorder
are, first, manifested ; secondly, a diminution of the forces of
the power of the heart; thirdly, the respiratory function
becomes impeded, as a necessary consequence of the two
first.' p. 108.

Next follow a variety of examples of complicated injuries
of parts not essential to life, ' in which the extreme state of
direct irritation ensued, which was in some destitute of re-
action, in others accompanied by excitement, and in all with-
in a very short period, fatal.' · The symptoms, in these cases,
were not essentially different from those, which have been
detailed. The injuries, which proved sufficient to produce
the result, were—a shattering of the trochanter and upper
part of the thigh bone, with laceration of the muscles, from
the discharge of a gun, followed by death in nine hours; a
similar injury from the wheel of a wagon, death in eight
hours ; a simple fracture of the tibia, terminating in thirty-
one hours—this patient had had severe headach for a fort-
night previous, and the pineal gland was found unusually
large and hard ; an extensive lacerated wound of the calf of
the leg made by the wheel of a wagon, and exposing the
knee-joint—death in sixty hours.

Death, with similar symptoms, occurs after operations for
recent injuries. A boy, whose hand and wrist had been
crushed by a wool-carding machine, died forty-eight hours
after amputation at the middle of the fore-arm. A man, who
had received a pistol-shot in the thigh, which produced a

fracture of the bone and an extensive lacerated wound, underwent amputation at the hip-joint, and died in twenty-four hours.   The phenomena in these two cases were nearly the same ; 'an excessive velocity and fullness of the pulse increasing to indistinctness, then a total failure of the pulse, with cold sweats, while the beat of the heart was quick and vibratory.   The predominant symptom, in which these cases coincided, is characteristic of the most intense degree of shock, viz. the early and unappeasable irritability of the stomach.'

Death also occurs from irritation after operations for chronic diseases, as for the stone in children ; several instances of this kind are related.   Convulsions are a very common occurrence in such cases ; and they are, according to our author, of a different kind from those we generally encounter. There is an active and a passive form of convulsions.   The former depending upon increased action, and requiring venesection and purgatives for their removal ; the latter appearing when the powers of life yield ; and being therefore symptomatic of exhaustion.   They require cordials and tonics. Such are convulsions occurring after hemorrhage, or in the state of prostration produced by injuries.   The smallest direct reduction of strength will, in such cases, extinguish life.

3. Direct irritation arises also from the inflammation following injuries and operations.   In the cases recorded under this section, there seems to have been inflammation of an unhealthy kind in the cellular membrane around the injured part, terminating in gangrene and extraordinary constitutional irritation.   The original injury may have been slight or severe.   It is the nature and degree of the consequent inflammation, and of the constitutional irritation it produces, which destroys life.   This state of things often results from inattention to the first injury, on account of its apparently trifling nature.   Proper assistance is not applied for till the patient is actually labouring under the established symptoms of constitutional irritation ; a contracted and quick pulse, foul and encrusted tongue, rigors and flushes, great anxiety, be-

wildered expression, constant vigilance, diffused pain, &c. Then follow increased rapidity and intermission of the pulse, cold clammy surface, hiccup, subsultus, muttering or paroxysms of frenzy, stupor and death.' p. 156.   In these cases, the most important practical indications are, 1st, free and early venesection for the relief of pain; 2d, free and early opening of abscesses.   The most common error is to rely upon local blood-letting at first, whilst the period for general blood-letting is passing away.   Under a prudent restriction, pain indicates bleeding even when gangrene is about to take place.   It is not the gangrene which destroys, but the constitutional irritation created by the violent and agonizing pain of the inflammation.

Several interesting cases are related of the effects of inflammation following operations; the pathology and practical results of these cases are the same with those which have been just considered.   As illustrating the very slight circumstances, which, in an irritable constitution, may produce fatal results, we find a case of death following the amputation of the ring-finger at the metacarpal bone ; no alarming constitutional symptoms occurred till the 11th day, when the patient was attacked with severe rigors, and became feverish, restless and irritable.   A large quantity of purulent matter was found under the palmar fascia and discharged ; but he died at the end of the fifteenth day.   In another case where amputation of the metatarsal bone of the great toe had been performed, the patient died at the end of a month with the appearance of hectic fever, and a large collection of pus was found beneath the flexor tendons in the sole of the foot. These cases show the great effect, which may be produced by a latent accumulation of matter within a theca, a fascial sheath, or aponeurosis, after a wound communicating with such parts, and should warn surgeons to be on their guard, when, with an indolent condition of the wound, symptoms of irritation, ushered in by rigor, arise on the third or fourth day, or later, after an injury or an operation. The vicinity of the wound should be carefully explored, all

adhesive dressings laid aside, and any sinus, that can be de-detected, fairly dilated.

4. Hemorrhage and colliquative suppuration will fre-quently produce a state of direct irritation. Several cases are related of sudden death following operations, which were necessarily performed soon after the loss of a great quantity of blood. The loss of a great quantity of blood predisposes also to serious consequences of another kind. The parts injured are in imminent hazard of erysipelas and gangrene. This has happened after the excision of hemorrhoids, and after cutting off part of the gut in prolapsus ani. When the system has been rendered irritable, but is recovering, from hemorrhage, a very small secondary bleeding will destroy life; and the same seems to be true of loss of blood, during recovery from injury or inflammation. Persons who are really getting well from severe injuries, are thus suddenly carried off, with symptoms of sinking or pure prostration.

The loss of blood, in injuries, predisposes to gangrene. It converts healthy inflammatory, or sympathetic fever, into the asthenic excitement which accompanies prostration : and the inflammation of healing (granulation) into that of de-struction (sloughing.) Cases of the sort which have been alluded to, are ultimately of the same character with those where the system has received a severe shock, although in the latter case little or no blood may be lost. All of them are equally to be referred to a great and sudden reduction of power. The danger from loss of blood is less where there is no burden upon the system, as in hemorrhage after delivery, than where there is such a burden, as the unre-lieved uterus, the unrecovered shock, a limb in a state of mutilation, or which has been amputated. In such cases, Mr Travers doubts the advantage of administering stimu-lants; for where the power is so reduced as to be barely sufficient to maintain life, the excitement of stimuli, although producing a temporary renovation, rapidly exhausts it. Thus, probably, persons left wounded on the field of battle to sleep, may stand a better chance than those taken away. For sleep will restore, where alcohol destroys. It is doubt-

ful, in this reduced state of the vital powers, when natural
sleep does not come to the aid of the patient, whether life
can ever be artificially maintained, that is, maintained by
stimulants.   It more frequently happens, that what little of
life there is left, is exhausted by their incessant administra-
tion.   Though 'it must be admitted in cases of such ex-
treme prostration as is indicated by relaxation of the sphinc-
ters, that the very sparing, but frequent supply of a nutrient
liquid, a tea-spoonful at a time, or of a stimulus so diluted as
not sensibly to swell the pulse, has sometimes succeeded in
preserving life.'

Direct constitutional irritation, when produced by rapid
and profuse suppuration, may be owing to the excess of the
secretion alone, or to the excess, coupled with the situation
of the secreted fluid.   Where there is merely an excess of
secretion, the effect is simple prostration of the vital powers
without excitement.   Where the matter is confined in some
particular situations, as, for instance, within a theca or fascia,
there is a mixture of excitement with prostration, and the
excitement may even preponderate so as to produce violent
delirium or tetanus.

5. The last class of causes, of which our author treats, as
capable of producing direct irritation, consists of poisons—
animal, vegetable and mineral.   He confines his attention,
however, principally to the first, and occupies about two
hundred pages, being more than a third part of his whole
volume, in the discussion of the subject of wounds received in
dissection.   He is disposed to take a view of it, somewhat
different from that which has been of late years prevalent.

'Until very recently,' he remarks, 'it has been a fashion, for
no profession is more subject to the dominion of fashion, to discre-
dit altogether the absorption of putrid matter, and this theory of
the origin of these cases; and I am old enough to remember the
hardy assertion, ex cathedrâ, that exposure of an absorbing surface
to dead animal matter, was uninjurious, and that the form of the
wound, and a certain predisposed irritable state of constitution,
induced by impure air, sedentary habits, deficient rest, anxiety of
mind, &c. afforded the real explanation of the phenomena attend-

ing upon these injuries. I am so far of opinion, that an unhealthy state of the system in many cases, pre-exists, that I do not presume to question, much less to controvert it. But admitting that it were an essential ingredient in the composition of the case, which it certainly is not, I contend that it is quite inadequate to the explanation of the facts I am about to lay next before the reader. In addition to numerous instances of dissecting-room cuts, and punctures made by the needle, in sewing up bodies after examination, it has of course fallen to my lot, to witness many cases of persons labouring under alarming constitutional irritation from acute diffused inflammation ensuing upon venesection ; trifling cut and punctured wounds with clean instruments; slight abrasions of the hand or foot ; agnails, or corns, cut to the quick ; and bites or scratches of domestic animals not the subjects of disease. I am impressed with the belief, that one of two circumstances operates towards the production of a large proportion of such cases ; first, an existing cachexia, or bad habit of body ; second, a severe aggravation of the injury by some mismanagement, negative or positive.’ ‘But although a bad state of body, or bad management, may explain the serious aggravation of a slight injury, to which, from its nature, no suspicion of poison can attach, and may also assist to explain the less resisting power of the constitution, the more rapid and uncontrollable march of the symptoms of destruction, in a case open to the suspicion of poison, it can obviously be urged no farther. The fatal effects of poison, taken into the system, are but too rapidly developed, although the previous health has been undisturbed, and the existing inflammation is insignificant.’ pp. 199—201.

The opinion of Mr Travers is then simply this, that in cases where, from a very slight injury, such as the prick of a needle, a fork, &c., local inflammation and severe constitutional irritation has arisen, which has terminated sometimes in death, the local affection is the direct origin of the constitutional, and that they will be, other things being equal, in proportion to each other. But that where, beside the injury, the instrument has conveyed into the wound some animal poison, the constitutional irritation does not arise from direct sympathy with the local affection, but from the direct

influence of the poison itself upon the whole system. The
inflammation in such cases is the sign or symptom only, and
not the disease. The constitutional irritation does not depend
upon it, though it may be aggravated by it. Inflammation,
indeed, does not seem to be necessary to the most virulent
and fatal action of the poison, " and in general I should be
disposed to say" says Mr T., " of these cases, that the
symptoms of local inflammation and constitutional irritation
exist in an inverse ratio of severity." The following case
illustrates strongly the truth of this remark :—

' Mr Elcock, student of Anatomy, slightly punctured his finger
in opening the body of a hospital patient, recently dead, about
twelve o'clock at noon, and in the evening of the same day, (Mon-
day) finding the wound painful, showed it to Mr Cooper, after his
surgical lecture, by whom he was referred to Dr Haighton, in
whose house Mr E. at that time resided. He applied a poultice to
the finger, and took some active aperient medicine. During the
night, the pain increased to extremity, and symptoms of high con-
stitutional irritation presented themselves on the ensuing morning.
No trace of inflammation, however, was apparent, beyond a slight
redness of the spot at which the wound had been inflicted, which
was a mere puncture. In the evening he was visited by Dr Ba-
bington, in conjunction with Dr Haighton and Mr Cooper. Still
no local change was to be discovered, but the nervous system was
agitated in a most violent and alarming degree, the symptoms near-
ly resembling the universal excitation of hydrophobia ; and in
this state he expired at three o'clock on Wednesday morning,
within the short period of forty hours from the injury.' pp.
203, 204.

The remarks, which we are about to quote, do not follow
on without interruption as we have inserted them, but they
are connected together, as exhibiting the general view which
Mr Travers is disposed to take of the principles upon which
the phenomena observed in cases of this kind, proceed.

' There is, as I have endeavoured to show, a variety in the
modes of inflammation, and though I am unable to say in what
degree the absorbents, and veins, and nerves and fasciæ may be
subject to be affected by the varieties which I have described as

affecting the cellular membrane, it is highly probable that, in some degree, they are.' ' The erythematous I consider belongs to a specific irritation, the erysipelatous to a specific state of constitution ; the gangrenous is to be referred to age or constitution, if not plainly occasioned by the extent of mechanical disorganization.'

' All inflammations are indications of natural resources, be they more or less than the occasion. The erythema and erysipelas seem to be modes of inflammation with inadequate power to carry them on to a termination. Thus they are deficient altogether in the adhesive stage ; they are incapable of a healthy suppuration; and their imperfect effusion or suppuration is at the expense of the life of the parts, i..e. complicated with a chemical decomposition of the fluids, (emphysema), or of the solids (gangrene). Now this is either due to the nature of the injury, or to the state of the system. A poison taken into the system will set up this inflammation in a healthy subject ; in an unhealthy subject, such an inflammation will be produced by a simple injury ; or a poison may be generated in the constitution, independent of local irritation.' ' Some poisons deprive the blood of the coagulating principle when drawn from the body. In such a condition of the system and the material, as this change implies, is it possible, that healthy secretions should be formed ? Is it extraordinary that, in particular circumstances, the vascular action should be so modified or altered by an enervation of vital power as to be incapable of forming the first products of sanatory inflammations—incapable of circumscribing, and determining secretions to the surface, and thus operating its own relief? Either these inflammations are constitutional, i. e. the result of certain unhealthy conditions of the system, whether arising spontaneously or from injury ; or they are the result of specific irritations, the nature of which is to destroy the principles by which the constitution is preserved from destruction. Such, in my belief, is the explanation of the erythema and erysipelas set up by poison, whether extraneous or morbid.'

· ' A bold inflammation of the absorbents and their glands, the cellular membrane or fascia, nay, even of the vein, I consider to be a much less dangerous action than that which affords the first and principal manifestation of its character in its effects upon the constitution. When therefore I have been applied to by students

and others, labouring under such inflammations, I have regarded
them in a favourable light, for if they are to be referred to the
inoculation of the wound with a poison, it is a local poison, its vi-
rulence appears and is exhausted upon the part; the constitutional
disorder, however severe, being such as belongs to ordinary irri-
tation.   When on the other hand, there is a degree of inflamma-
tion very inconsiderable, and disproportionate to the pain and ge-
neral nervous excitement; when the local affection shows itself,
not upon the arm, but on the breast, and assumes the character of
erythema or erysipelas, with which the constitution always sym-
pathizes in an extraordinary degree—then I entertain a less cheer-
ful view of the case.'   pp. 219—223.

In support of his general views Mr Travers narrates the
particulars of a great number of very interesting, though ter-
rible cases of disease arising from poisoned wounds received
during dissection, and endeavours to illustrate the difference
between these cases and those of constitutional irritation
arising from sympathy with a part inflamed from any com-
mon cause.   There will remain, after all that may be said,
some doubts upon this subject, in the minds of many per-
sons, and although Mr Travers may truly be admitted to
have made a very strong statement of his opinion, yet it
cannot be considered as perfectly conclusive.   It would be
impossible to follow him through all the details of this chap-
ter, and we therefore pass them by, reserving the privilege
of returning to this part of his subject at some future oppor-
tunity.

The symptoms of constitutional irritation have some re-
mote resemblance to fever, but the resemblance consists
principally in a few insulated phenomena, whilst the combi-
nation and relation of symptoms are very different.   Fever
is distinguished by repeated paroxysms, more or less dis-
tinct.   ' The preponderant influence of the nervous sys-
tem, which characterizes irritation, appears to derange the
sympathy and consent, the revolution and duration of ac-
tions constituting the paroxysms and types of fever, and re-
ferred to the struggles of the vis medicatrix.'   ' In all fevers
the nervous system is more or less involved, but for the

most part secondarily or as a consequence, if we except the
case of phrenitis ; whereas in irritation from local injuries of
a severe description this system is first, and so affected, as
apparently to prevent the formation of fever, and to present
a series of symptoms sui generis.'   pp. 400, 401.

Mr Travers has before considered direct irritation under
two forms, prostration without re-action, and prostration
with excitement. He gives, in recapitulation, the follow-
ing epitome of the symptoms indicating these two forms :—

' 1. Prostration without re-action is marked by universal pallor
and contraction of surface, shuddering, very small and rapid pulse,
astoundment of the mental faculties, generally a dilated pupil,
shortened respiration, dryness of the tongue and fauces ; indistinct-
ness, and at length cessation of the pulse at the wrist, stupor, op-
pressed and noisy respiration, coldness of the feet and hands, invo-
luntary twitchings, relaxation of the sphincters, confirmed insensi-
bility, stertor and death.

' 2. Prostration with excitement is marked by the signs of lan-
guor and stupor or drowsiness in the commencement,* to which,
after a variable interval, succeed rigor, precordial anxiety, rest-
lessness, jactitation ; a rapid and bounding pulse, oppressed respi-
ration, with frequent attempts to sigh, flushed countenance, con-
tracted pupil, dry heat of skin, parching thirst, rejection of liquids
taken into the stomach, incoherence and wildness of expression,
sometimes amounting to fierce delirium. This state is succeeded
by exhaustion marked by somnolency, a profuse chilly and clammy
sweat, a haggard and livid aspect, a small irregular or fluttering
pulse, innumerably rapid, panting respiration, passive convulsions,
hiccup, and subsultus, the stupor and stertor of apoplexy, and
death.

' These are outlines of the general character of the two forms.
A variety of the first which I have seen, is little more than a state
of continued languor and faintness, with coldness and sleepiness

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* These, like other of the symptoms enumerated, are of course subject to ex-
ception. Hours have sometimes passed away without the occurrence of an
alarming symptom, in which case a severe rigor, or several at short intervals, ge-
nerally open the attack ; in other instances this symptom is wanting.

verging on deliquium, the pulse and breathing almost impercepti-
ble to the nicest observation, terminated by convulsions.

' Of the second, alternated with the state of coma, convulsive
paroxysms, in which the features undergo the contortion and fixed-
ness of epilepsy, vehement maniacal ravings, and impotent attempts
to rise from bed, with an incessant muttering and repetition of
broken phrases relating to the occupation of the individual, and ter-
minating in exhaustion.

' These are the extreme states. Instead of the continuance and
fatal increase of the symptoms of prostration, they may gradually
give place to a partial and defective re-action, protracting life, but
faintly improving the prospect of restoration, which remains doubt-
ful for several days in succession: or on the contrary, an efficient
and healthy degree of re-action may be quickly established, conse-
quent upon symptoms threatening the most unfavourable issue.
This uncertainty of termination is remarkable, and serves to show
how much the event is to be ascribed to the continued operation
of the irritant, to the continued sense of injury, if I may so express
it, which the constitution feels in one case, and not, or more than,
in another.' pp. 406—409.

Thus where there has been a severe fall or blow, but no
external injury, a patient apparently moribund, without
pulse and without sense, will frequently, after a considerable
interval, by the spontaneous efforts of the system, recover
almost completely from a situation apparently desperate.
The re-action in such cases is to be attributed to the free-
dom from any local injury or disorganization, for had there
existed a severe though a reparable topical injury, it is pro-
bable that it would not take place, or if it did take place,
would assume the form of excitement.

It is apparent that Mr Travers has classed together under
the single term constitutional irritation, affections which ex-
hibit a great variety both in the kind and degree of these
symptoms. He admits this himself, but maintains that these
affections are produced upon the same general principles,
and are ultimately of the same nature. The difference be-
tween them depends upon the degree in which the nervous
system is implicated. Some affection of this system is de-

sirable, and is necessary in order to ensure the co-operation of the whole system in the process of recovery. It is only when it is affected excessively, or in an undue manner, that the result is pernicious.

'The diversity of the modes of injury by which irritation is set up, can excite no surprise, if we consider the universal and predominant influence of the system in which it has its seat. I believe the constitution is affected by the same species of malady in the various cases above related, because I find similar effects succeeding to circumstances which appear adequate to produce them. Whether they are operations of nature or of art, internal or external, mechanical or chemical, whether they prove destructive in ten hours or ten days, if the disorder differ only in its degree of severity, and consequently its progress and duration, the propriety of such an arrangement, and I may add the advantage, are obvious' pp. 411, 412.

Chapter V. is entitled 'Theory of Irritation.' The remarks which it contains are valuable, and have some practical bearing. They manifestly proceed from a man who has learned his physiology in the true school for it, the observation of the living human body under all the various circumstances in which it is exhibited in health and disease. We are obliged, however, from the length to which this analysis has already been extended, to pass to the last chapter, which enters upon the consideration of the treatment of the affections which have been described.

Chapter VI. is on the Pathology and Treatment of Direct Constitutional Irritation.

And first, of the state of prostration without re-action.

This state consists probably in an interruption, derangement or suspension of that regular series of impressions and actions which is maintained between the nervous and muscular systems, and which is essential to animal existence, by some sudden and violent shock, mental or corporeal, or of the two combined, which is fatal or recoverable according to the intensity of the shock and the permanency of the condition from which it originated. Of the nature of this state there will be difference of opinion. Mr Travers calls it prostra-

tion, because it is a term descriptive without being hypothetical. Some pathologists regard it as the result of an exhausting effort of nature to meet the emergency, from their inclination to resolve every action into a salutary or restorative operation. Our author, on the other hand, remarks that it would be utterly subversive of his notion of the case, to suppose that nature was in a condition to make any arrangement for her own relief.

In the treatment of this form of irritation, the state of the circulation as inferred from the pulse, complexion, breathing, and temperature, is the chief if not the only guide. If there be no hemorrhage and no lesion of a vital organ, cordial drinks, such as wine and brandy—the diffusible stimuli, ammonia, ether and camphor, with aromatic distilled waters, and warm stimulating enemas, are to be used internally. Externally, heat is to be applied to the stomach and extremities, and embrocations and frictions with spirit and camphor are to be employed when the state of parts admits. When any advantage is thus gained, some light aliment is to be substituted for, or given with, the above remedies. ' We have two points especially to bear in mind, first maintaining action, secondly not forcing action.'

The first requires the careful personal attention of the medical attendant, as no other person can be qualified to superintend the management for the first few hours. Purgatives are not to be given till the circulation is restored, and then only the mildest. It is of the highest importance to keep the stomach, upon which the principal reliance is to be placed, in as natural a state as possible.

' If we neglect to supply stimulus, when called for, the spark of life goes out. The signs of its indication must therefore be vigilantly observed. We are maintaining action upon inadequate power, in the hope that the natural resources may come to our relief, and that we may gradually diminish stimulus and increase nutriment, which is our only method of raising power to a balance with action.' p. 458.

The second point, not to force action, requires equal delicacy of attention. For as there is a deficiency of power,

and as action is only maintained at an expense of power, it is proper to keep action as low as is consistent with the maintenance of the functions of life. Hence over-stimulation in this state of things may be productive of fatal mischief, by bringing on excessive re-action, which constitutes prostration with excitement in its most perilous form.

The degree in which the functions of the brain are affected varies the symptoms of prostration. When their influence is much diminished, the mind is more stupified, the respiration more difficult, the temperature of the surface less, the muscles more convulsed, and the pulse more irregular and intermittent. But these symptoms are by no means to be regarded as certain signs of any peculiar injury of the brain, although such an injury, at the moment of its occurrence, may produce them. They are more or less common also to all cases of shock, whether the brain be injured or not.

' The stupor, convulsions and delirium, which characterize injuries of the head by their appearance after an interval in which re-action has been fully established, assume a pathological character very different from those identical symptoms occurring at the moment of injury. But if, after an injury unattended by hemorrhage, in which the head has suffered no direct mischief, the surface retains its natural warmth, and the pulse and breathing be oppressed, and there be present stupor, convulsion, and inaction of the pupil, blood should be taken in such quantity as to relieve congestion, and its effect upon the symptoms duly noticed. If, on the other hand, stupor and convulsion be accompanied by a contracted and cold surface, and a thready or intermitting pulse, the cordial is the proper remedy. Greater freedom of circulation, and a consequent diminution of the stupor and convulsion will be found to follow both the one and the other practice, as it is judiciously resorted to.' pp. 460, 461.

The custom of letting blood in all cases of injury indiscriminately, without regard to the state of the constitution, is reprobated. The use of opium in either of the states alluded to in the last quotation, is disapproved.

In burns and scalds with prostration, Mr Travers recom-

mends the internal use of brandy in gruel, till the pulse ris-
es, and afterwards, according to circumstances. The bowels
are merely to be kept open with oil or calomel, and he aban-
dons the use of opium. As an external remedy, in deep
seated burns, he employs the liniment of turpentine and olive
oil, or turpentine and cetaceous ointment. In superficial
burns, the liniment of milk and lime-water at first ; and
where suppuration has become abundant, the calamine or
chalk powder may be strewed over the surface.

' Prostration with excitement,' as the term implies, is based
in debility. The energies of the system are diminished in
proportion as the actions are increased in cases of excessive
re-action. The heart is rather thrilling than fairly pulsating ;
its semi-contractions are innumerably rapid ; the expression
is by turns excited and oppressed, wild and comatose ; the
breathing short, and wanting the relief of sighs. A continu-
ed exertion of reason cannot be maintained, and after a cor-
rect reply or remark, the patient wanders into irrationality.
It is, in fact, a state of irregular and violent re-action, in
which there is not power in the system to establish and car-
ry through the actions which are begun. In such a case,
the state of exhaustion into which the patient lapses, quickly
terminates life. Symptoms of excitement are intermingled
with those of an opposite description, an effect sometimes at-
tributable to the over-stimulation of the system.

In this form of prostration we are advised, if, from exces-
sive re-action, the case assume the character of high excite-
ment, that the scalp should be shaved, and bathed with a cold
spirit lotion, the neck blistered, and the bowels cleared by
calomel and jalap, or scammony, or, if the stomach will not
bear these, by strong injections. The stomach, however, is
to be spared as much as possible, and medicine administered
chiefly by way of injection. Mr Travers inclines to the use
of opium in this state, and has seen the happiest effects from
its use by injections in the highest degree of symptomatic
delirium. In the high excitement of irritation, it is only in
full doses that it is admissible or serviceable. In the low
muttering delirium which accompanies sinking, the frequent

repetition of a small dose, a quarter of a grain, for instance, every second hour, is decidedly beneficial.

Extract of henbane is recommended as an anti-irritant of great value as an adjunct to opium, and as a substitute where it is inadmissible. It should be given in doses of from three to five grains, every second or third hour.

' In the ruffled states of the system generally,' says Mr T., ' but especially in the over-active state of the vascular system, there is a charm in the operation of henbane, altogether peculiar. It is feeble as an anodyne, feebler as a soporific, but not poppy, nor mandragora, soothe and still so unexceptionably as henbane.' p. 479.

In remarking next upon constitutional irritation, as ensuing upon injuries, inflammations, &c., Mr Travers insists upon considering it as an order of morbid actions, distinct from fever or constitutional inflammation. He admits that it may be combined with febrile action.

' It will not be denied,' he says, ' by experienced surgeons, that there is a large, and very important class of cases, in which neither the assemblage of symptoms, nor the periodical exacerbations and remissions constituting fever, are present, and which, if we treat them in deference to the rules laid down for the treatment of fever, utterly disappoint and mock our efforts. Of these some never arrive at inflammation, others, owing to the shock which the constitution has sustained, sink almost as soon as inflammation is established, from incapacity to maintain it. Some, as Mr. Hunter has observed, go on well, and when we are no longer in apprehension for the past, the constitution, exhausted by the reparative effort, can go no farther, and suddenly collapses; whilst others displaying, from the commencement, symptoms of high but irregular excitement, betray in every change, local and constitutional, an excessive and destructive re-action. The first stage of constitutional irritation, ensuing upon injury or inflammation, by no means exhibits that provident faculty of nature which is so much insisted upon; for the tumult of the system, proceeding from the sympathy of the whole with a part, is a state with which restorative action is wholly incompatible. The first stage of local irritation or inflammation illustrates this fact. The actions which ensue aggravate

the mischief rather than tend to its relief, insomuch that we have often more concern about what is to follow than about what is past, and would gladly compromise for a result. Nevertheless, it is not inconsistent to regard the processes, of which these form essential preliminaries, as serving a salutary purpose. But assuredly the first actions, both of the constitution and the part, are those of angry disturbance ; and our first business is to compose and allay them. Having fortunately succeeded in this, the actions which require for their institution and maintenance an unusual, but not unhealthy vigour, commence as a natural consequence.' pp. 485—487.

Where a limb has suffered so severely from injury, as to render it likely that the system cannot support the constitutional effects which it will produce, its removal anticipates or diminishes these effects, if the operation be performed so soon as to identify itself with the injury. Throwing out of the question the value of the limb, the arguments are strong in favour of an immediate operation ; for, if a considerable time elapse, the system may fall into a state which shall render it inexpedient.

In operations for chronic diseases, the habits of life and those of the malady, are circumstances which are to have influence upon the management of the patient. The habits of long indisposition become, in some measure, constitutional, and are as important to be known in case of an operation for chronic disease, as those of health are in case of an operation in health. An ignorance, or a disregard of these circumstances, may frequently be productive of disastrous consequences ; and it is from the same consideration, that the custom is to be reprobated of performing a serious operation, and leaving the after treatment to any other than the surgeon himself.

In speaking of constitutional irritation from inflammation, our author again strongly insists upon the radical distinction between it and sympathetic fever, but admits that where the irritation is set up by inflammation, febrile action is blended with it. Fever requires, and as Mr Hunter justly observes, shews powers of resistance. In irritation, we have no de-

terminate or continued train of actions.   It is 'every thing
by turns, and nothing long.'   ' Irritation may be a symptom
of fever, as fever may be an effect of irritation, but they are
originally and essentially distinct forms of disease, and either
may exist in the absence of the other.'

Sympathetic fever is a healthy re-action of the constitu-
tion ; if the natural powers be deficient, it assumes the low
typhoid character, and in its progress the nervous system
may become affected and symptoms of irritation arise in con-
sequence ; but here they are secondary, and complicated
with those of fever, so as to be obscured by them.   But in
certain forms of injury, certain constitutions and modes of
treatment, the inflammation produces irritation which takes
the precedence or the place of fever.

In the treatment of sympathetic inflammatory fever en-
suing upon injuries, Mr Travers thinks surgeons are apt to
be too anxious to bring down, and cut it short, by vigorous
measures.   We ought not to be alarmed at fever, but at
the want of it.   We are rather to soothe, tranquillize, and
moderate the action, than attempt to annihilate it.   All rough
measures, therefore, are to be avoided, such as profuse
bleeding, purging and sweating, and we are merely to keep
up a moderate determination to the secreting organs.   Irri-
tation is apt to be the consequence, where these cautions are
not observed, and where this takes the place of inflammation,
the only medium of cure is destroyed.

He is equally averse to the use of many measures, which
are often taken with regard to the local treatment of inju-
ries.   Such as tight bandages, adhesive plasters, splints, &c.
&c. applied whilst effusion is going on, when they operate
as strictures and ligatures.   Lint to fresh wounds, plugging
them to force suppuration, or strapping them to prevent it—
leaving close dressings on complicated wounds for several
days, in order to convert them into simple ones, may
all be sources of severe constitutional irritation.   Parts
may be inspected at intervals of a few days, without disturb-
ing the natural healing process, and with much relief to the
patient.

'The general inference which I would draw, relating to the treatment of sympathetic irritation as compared with that of sympathetic fever, is as follows, viz. the symptoms of excitement belonging to the first, although resembling those of the second, are in point of fact allied to a powerless state of constitution, and will not bear to be treated after the same manner. Blood-letting, general and topical, and a forced increase of the secretions by active forms of medicine frequently repeated—the appropriate remedies for high inflammatory fever—are calculated to aggravate, in an alarming degree, the symptoms of irritation. In partial exception to this general observation, however, it sometimes happens that the effect of suspended biliary secretions is evidenced in an obstinate confinement of the bowels, and in this case the relief of the symptoms is not obtained until copious bilious evacuations have been procured. The aloe, or colocynth extract, or blue pill combined with calomel, and repeated as required, are the best medicines with which I am acquainted, for relieving this state. Alcohol, ammonia, ether, camphor; opium and henbane, and bark, in substance, decoction and tincture are the articles upon which, in the circumstances respectively indicating their use, I believe most reliance may be placed in the treatment of acute sympathetic irritation.' pp. 499—501.

Constitutional irritation from loss of blood may amount to pure prostration, or it may be accompanied with excitement. It is often produced by a too frequent repetition of blood-letting, practitioners being induced to fresh bleedings, by the present relief which the operation gives to symptoms, which the preceding ones have produced. In connexion with this subject, Mr Travers refers with great praise to the paper, in the Medico-Chirurgical Transactions, by Dr Hall, which was republished in a late number of this Journal. In fact there is a remarkable coincidence in the views entertained by these two writers; and their opinions are worthy of the most careful attention on the part of those practitioners who are accustomed to the very free use of the lancet.

The effect of hemorrhage is two-fold, immediate and remote. The *immediate* is syncope, which depends more upon the suddenness or rapidity of the hemorrhage than the

quantity lost.   The remote effect is in proportion to the quantity lost, as in a frequently recurring hemorrhage, or a slow and protracted one, and consists in a precipitation of the actions of the heart, indicated by a quick and contracted pulse.

In the treatment of prostration with deficient re-action as the result of hemorrhage, the most important indication is to give support by nutriment in the most assimilable forms, at short intervals, in moderate quantities, aided by nutritive clysters, and by a cautious use of vinous stimulus.   In addition to this course, a pure and fresh atmosphere is to be preserved around the patient, and the surface kept of a natural warmth.

Of the cases of proper constitutional irritation from animal poison, few recover, not more than one in seven; whilst of those cases of inflammation which are confounded with them, and the proper distinctions of which have been laid down above, not more than one in twenty dies.   The symptoms peculiar to this form are shortly as follows.   Pain more or less acute in the wounded part, and a fulness and tenderness on pressure of the breast and shoulder.   From the third to the fifth day, erythema makes its appearance either on the pectoral, scapular or iliac regions, running towards the median line, and bounded by it.   This is one of the most marked symptoms of the disease.   Pain and puffiness precede the efflorescence.   It terminates in vesicle, in pustule, in abscess, whitlow or gangrene.   The absorbent vessels and glands may become swelled and tender.   But any of these signs may be wanting, and the erythema may take a very different course in different instances.   Little that is very satisfactory can be recommended with regard to treatment.   As to local applications, a great diversity have been advised by different persons.   If a caustic is applied at all, it should be immediately done; as, after inflammation begins, it may prove injurious.

When inflammation is set up, simple and soothing applications are probably best.   If there be much tension, the vessels should be opened by a free cut in the line of the wound

and the part then enveloped with a poultice.   For the ery-
thema, folds of linen wet with diluted liquor plumbi, or
liquor ammoniæ acetatis, are the best applications.   If the
cellular membrane becomes much loaded, incisions are be-
neficial to quicken the slow and imperfect suppurative
action.

For the constitutional treatment, no particular rules can
be given.   It must be determined by a variety of consider-
ations.   The antiphlogistic course is decidedly disapproved,
though the possibility of a case where blood-letting should be
required, is admitted.   The general character of the patient's
constitution and habits of life, combined with the indications
afforded by the assemblage of existing symptoms affords the
only safe guide, and we are particularly to guard against be-
ing influenced by the consideration of any single symptom,
since this is a most fallacious criterion.

' To conclude : the general character of inflammation is power,
that of irritation, weakness; these may be more or less strongly
marked in individual cases, and the symptoms must therefore guide
the treatment, subject to the modification which the general cha-
racter imposes.' ' Inflammation and irritation, the phenomena of
two systems so combined as not to admit of separation, are never-
theless to be viewed and considered somewhat distinctly in their
pathological relations ; and if I mistake not, such a course of ob-
servation will justify, as regards the latter, an earlier and freer use
of the means best suited to support and renovate the powers of the
nervous system, than is consistent with the prevailing practice.'
pp. 542, 543.

We have endeavoured to give in our analysis of this
work, as exact an account of the opinions of the author as
was possible, and, as far as was consistent with brevity, to
give them in his own words, which indeed have been often
used when the manner in which they were introduced,
would not admit their being distinguished as quotations.
Mr Travers hints at the probability, that he may complete
his plan in another volume, in which he proposes to con-
sider the subject of reflected irritation.   This, it is certainly
desirable should be done fully and extensively, and it is not

likely to fall into hands more capable of doing it justice than Mr Travers.

The present volume is certainly very valuable, and is more particularly to be recommended to the profession in this country, where so little attention has, comparatively, been devoted to the subject of it. We should think it a more proper book for practitioners than for students in medicine. We are not sure but the latter would sometimes be as much bewildered as instructed, for it cannot be denied that the author is unfortunate in the arrangement of his materials, and is consequently often obscure. We think also that he exaggerates very much the distinctions between the affection which he calls direct constitutional irritation, and the other affections of the constitution from various causes. He considers the distinctions between them as of too essential a nature. And although as a practitioner his views appear to be always clear and well directed, as a pathologist, he is often obscure and apparently somewhat inconsistent. These defects, however, do not essentially impair the value of the work, which it were to be wished might be reprinted and circulated among us.

II.

A Treatise on Diet : With a view to establish, on practical grounds, a System of Rules, for the prevention and cure of the Diseases incident to a Disordered State of the Digestive Functions. By J. A. Paris, M.D. F.R.S. Fellow of the Royal College of Physicians, etc. etc. London. 1826.

The literary labours of Dr Paris are an illustration of the remark which has often been made, that neither of the professions offers so great a variety of intellectual occupation as our own. His first important work is entitled Pharmacologia ; and it well answers to its title by its elaborate and various learning, and the curious and practical matter it contains. His next work is, his Medical Jurisprudence,

In this he was co-author with Mr Fonblanque, a learned
barrister, and known to his profession by his treatise on the
Law of Equity.   The ‘ Medical Jurisprudence’ is volumin-
ous, and a treasure of learned reference and useful detail.
Being the joint work of authors of two professions, it was
designed for the members of both.   This has at least increas-
ed its bulk ; but it would be out of place to inquire, how
far the two different and opposite ends have been answered,
how good a lawyer it will make of the physician, and how
much of our mystery it will communicate to the lawyer.
Dr Paris’ next work is entitled Medical Chemistry.   This
has indeed some alliance with his first work.   We shall
only say of this, that the reviewers have awarded him but
little praise for this volume, inasmuch as they had already,
they say, met with most of its contents in contemporary
authors.   So precise is its resemblance to what Brande
and Henry had previously published, that it is almost iden-
tical ; and the only question with some readers has been,
which author they will have.   His latest work is on ‘ Diet,’
the volume before us.   This has been well received by the
profession, and by the public.   This latter class of readers
has been especially pleased with it.   It meets the wants
and wishes of that large part of every community who have
committed some errors in diet, and who have gone on
offending more and more, until the question of what they
may eat has become momentous indeed ; for, whereas be-
fore, the only embarrassment was created by the variety
which might be eaten, it now happens that scarce any thing
can be eaten with impunity.   This has now been asserted of
the many of every community.   We believe it is not over-
stated.   We leave out of the account the laborious, the needy
and the temperate, for with these, the gluttony, if we may use
so harsh a word, of the refined, the indolent, and the luxu-
rious, has no place.   The question with the former is, what
they can get, not which they shall eat, and a natural limit is
found to the amount eaten, in the very absence of the temp-
tation which a great variety of food always furnishes.   The
paramount error in eating is the quantity.   Not of bread, of

water, and of plain meat, but that quantity which is insen-
sibly accumulated in the stomach by the daily eating of a
great variety of articles.   The stomach indeed is a capacious
and accommodating organ, and it has two orifices, one for
the food to enter it by, and another for it to pass out of.
But the organ into which this latter orifice opens is, compa-
ratively, a very small one.   It is less accommodating too,
than the stomach.   The orifice itself, the pylorus, will per-
mit but a certain quantity to go through it at a time ; and
not only so, that which it will give passage to, must be in
a particular and proper state, or it will refuse for a time
to let it pass.   Suppose, for a moment, that we have over-
loaded the stomach, diminished its natural powers, so that
the food is not digested, is not in a proper state to leave it ;
and, regardless of the resulting inconvenience, we go on
still farther to transgress, eat more, perhaps to quiet the sto-
mach ; the consequence must, and will be, disease.   It may
be a fatal attack of apoplexy in the predisposed ; or, what
more commonly happens, a sick headach, a *duodenal* head-
ach it may be ; and then a severe fit of vomiting, and twenty-
four hours of wretched exhaustion may restore tranquillity.
Now, this is not an imaginary sketch.   It is entirely true,
and gives us the first stage, the first step of that long and
miserable disease, indigestion.   This disease is confirmed
when the exhausted organ no longer tolerates any kind of
food ; when the simplest, with the most complicated, alike
torments it, and when the sufferer is only comfortable while
he is literally starving.   We say this, for by a strange ca-
priciousness, the appetite sometimes remains excessive, even
where the smallest gratification is torture.

In these very brief remarks, we have alluded to the
quantity of food, as tending to produce disease.   It will be
asked, if there be not other causes.   There are many
other causes.   Among these are, that total disregard to ex-
ercise, and the long and laborious toil of some of the seden-
tary classes amongst us.   As these are for the most part
the more intellectual, it will be urged that, in them at least,
the quantity of food has not been the principal agent in the

production of disease. Quantity, let it be remembered, is relative. It has regard, especially, to the powers of the stomach at any given time, to digest what is put into it. Now, these powers are diminished by other causes than excess. They are enfeebled by sedentary habits, and, especially, when these are accompanied by hard intellectual labour. Such labour and such habits impair the whole body, and student, with us, is almost another word for valetudinarian. But the toil of the mind, especially, acts on the stomach. Violent emotions, it is well known, suspend and subvert its functions. A less powerful excitement, if long continued, operates after a similar manner ; and all the functions which are accessary, or consequential, to digestion, become weakened by it. The relation of the quantity of food to indigestion may now be fairly recognised, even though there seem to be nothing excessive in it. The weakened organ cannot digest the ordinary, and hitherto safe quantity; and the temperate man finds with surprise, that there is stealing upon him the disease which he had always ascribed to the intemperate liver, as the effects of gluttony. He suffers repletion under philosophic abstinence, and his fine intellect is as powerless and dull as his which has only been used to minister to his appetite.

It is this bodily and intellectual suffering, that has given to indigestion so much interest to the physician, and which has crowded our professional literature with so many volumes and tracts concerning it. In the preceding remarks, we are aware that we have taken a popular rather than a strictly professional view of the subject. To the physician, they will be a thrice told tale ; but we have not so often given our pages to this disease, as to warrant just complaint for what we have now done. The truth is, that of late a popular character has been given to many of the better works that have appeared in medicine. This is true of Dr Paris' present work. We have before remarked on this tendency of modern medical literature. It has not been complained of ; but a hope has been expressed that, as long as this continues to be in any degree the case, the business

of writing will devolve on sensible and experienced men.
As long as this continues to be the case, our literature will
not suffer.   The professional reader has an interest in this
subject.   He will get good books, and entertaining books ;
and it is really refreshing, now and then to pass from the
solemn, useful dulness of elaborate detail, and ingenious
theory, to apt illustration, and even judicious humour.   We
think there is no real danger of trifling too much with the
subject ; and if there should be, we have only to carry our
students back for a quarter or half a century, and the evil
will surely find a remedy.

It has been asked, if dyspepsia be on the increase, that
recently so much has been written directly and indirectly
regarding it.   We are disposed to think that, in our imme-
diate neighbourhood, there is much less of this disease, in its
severest forms, than formerly.   It perhaps never existed
any where in a worse form than it has with us.   We have
now in our memory many cases, both in the young, and the
more advanced, of its worst species.   The emaciation in
these individuals was its most obvious symptom, and this
is rarely exceeded in any disease.   These cases were made
the basis of a very curious theory, by a learned medical man,
a foreigner, who happened to be here, at the time when ma-
ny of them existed.   He regarded it as a form of scrophula,
and the symptoms were explained very much after the same
manner as some of those are which belong to phthisis, parti-
cularly the emaciation.   These patients, however, all reco-
vered, and live to this day in perfect health.   They found
a rapid means of cure in voyages and foreign travels.   In its
milder forms, we should be disposed to think the disease
had increased.   Not because books have been multiplied
concerning it, for this fact is readily explained by the ori-
ginal and better views pretty recently taken of it, and by
the contagion of literary example.   We are inclined to think
the disease more common, because we think luxury has in-
creased, that there is more eating, more drinking, more
strictly intellectual labour, and, except within a very short
time, much inattention to exercise.   A seeming increase

would be found in the fact, that whole classes of diseases, constitutional and local, which were once treated as primary affections, have of late been referred to morbid states of the stomach and its connected viscera. From the beneficial effects of proper diet, and a treatment designed to restore the healthy state of those organs, there is much reason to think that these views are correct. A work on diet, in its relations to the diseased as well as healthy state of these organs, cannot, then, but be well received by the profession.

Dr Paris begins with a short introduction. According to this, he does not propose to add to the stock of information on the subject of his work, but to correct the errors into which preceding writers have been betrayed. The purpose is a good one, though we do not exactly perceive the distinction intended by the author. To correct an error is to inform. Following the introduction, is an anatomical view of the digestive organs. Dr P. thinks this may be thought superfluous and reprehensible. He claims a right to do what he thinks best in the case, in the following words :—
' I must, however, remark, that every author is conventionally allowed to state the theme of his discussion in his own language, and the advantages which have hitherto attended the indulgence sufficiently sanctions its continuance.' There can be little question that the author's course is a useful one ; and it is so, principally, because not only does minute and curious anatomy escape from the memory, after a time, but because its more practical department also, that which treats of the larger and more important viscera, is almost equally forgotten. Discoveries are also occasionally made, or better descriptions given of long known facts. These circumstances are at least an apology for an author swelling a strictly practical work, with more or less minute accounts of the structure and situation of the parts, concerning the diseases of which he designs to treat. We extract the following account of the duodenum, which deserves to be remembered.

' *The duodenum* comprehends that range of small intestine which commences at the pylorus, and extends for about twelve inches ;

and so important are the changes which the aliment undergoes in its cavity, that many authors have regarded it as entitled to the appellation of a second stomach; and I shall, hereafter, have occasion to state, that many diseases which have been erroneously attributed to the stomach, derive their origin from the functional aberrations of this intestine; a fact which renders a knowledge of its structure and situation of great importance to the pathologist. Unlike the stomach, which may be said to be comparatively loose and floating in the abdominal cavity, it is secured in its position by various attachments, and the manner it is protected strongly evinces the importance of its functions. The practitioner should ever keep in mind the positions and bearings of this intestine; for, as Dr Yeats has justly observed, and the fact has been confirmed by my own experience, that patients, directed by their own uneasy feelings, will frequently trace, with most anatomical accuracy, the course of the duodenum with their finger, from the stomach to the loins on the right side, and back again across the abdomen to the umbilicus. The duodenum, at its commencement, turns backwards and downwards for a short way; it then turns towards the right kidney, to the capsule of which it is more or less attached; it here forms a sacculated angle, and in this depending part, the ducts for conveying the pancreatic and biliary secretions enter the intestine; it now ascends from the right to the left, just before the aorta and the last vertebræ of the back; it continues this direction from thence obliquely forward by a slight curvature, and makes its exit through the ring in the mesentery. Its mucous membrane which presents many villi, and a great number of follicles for the secretion of its own peculiar fluid, forms irregular circular folds, termed ' *Valvulæ Conniventes*,' which increase the surface of the intestine, while they prevent the too rapid passage of its contents. It is furnished with nerves from the *ganglions of the great sympathetic;* and it is also abundantly supplied with blood-vessels. It is impossible to view all the arrangements of this organ, without being satisfied that Nature was anxious to limit its motions; and a little reflection will convince us of the great importance of such a provision: Dr Yeats, in his valuable paper on the duodenum,[*]

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[*] Some Observations on the Duodenum; with plates descriptive of its situation and connexions. Extracted from the Gulstonian Lectures, by G. D. Yeats, M.D., &c.

which is published in the sixth volume of the Transactions of the College, has alluded to this fact in a very pointed manner. It is evident that, had this intestine been loose and floating, the food might have passed too rapidly through it; it might also have drawn the small end of the stomach out of its proper situation; and there would have been a constant disposition in the food to pass out of the stomach into the duodenum, upon every relaxation of the pylorus: besides which, had it been less confined, and consequently subject to greater distension, a regurgitation might have taken place into the *ductus communis*, from an alteration in that obliquity of its direction, which now so securely guards against such an occurrence. Dr Fordyce, in noticing the fact of the peritonæum being wanting on the back of the duodenum, most erroneously concludes that this was ordained with a view of allowing a greater distension than can take place in the lower intestines; had such been the design of Nature, she certainly would not have discarded so highly elastic a membrane, and attached the back of the duodenum to the vertebræ.' pp. 16—18.

The following is on the gastric juice :—

' The *Gastric Juice.* Great difference of opinion has existed with regard to the qualities and composition of this fluid; it would, however, appear that other secretions of a mucous nature take place in the stomach, with which it may be mixed: this circumstance, together with the difficulty of obtaining it in an isolated form, are sufficient to explain the contradictory results which different chemists have obtained. It is, moreover, by no means improbable that this liquor may vary in different stomachs, or even in the same stomach under different circumstances. M. Majendie observes that the contact of different sorts of food upon the mucous membrane, may possibly influence its composition: it is, at least, certain that the gastric juice varies in different animals; for example, that of man is incapable of acting on bones, while that of the dog digests these substances perfectly. From the best authorities upon this subject, the true gastric juice would seem to be a glairy fluid, not very diffusible in water, and possessing the power of coagulating certain fluids in a very eminent degree. Dr Fordyce states, that six or seven grains of the inner coat of the stomach, infused in water, gave a liquor which coagulated more than a hundred ounces of milk. Some authors have regarded it as colour-

less, and without taste or smell, while others have described it as
being acidulous.*   Dr Young, of Edinburgh, is stated to have
found that an infusion of the inner coat of the stomach, which had
been previously washed with water, and afterwards with a dilute
solution of sub-carbonate of potass, still retained the power of co-
agulating milk very readily.   We see, therefore, how unfounded
that opinion is which attributes to the potation of water, the mis-
chief of diluting the gastric fluid, and thus of weakening the di-
gestive process.   The coagulating and efficient principle, what-
ever it may be, is evidently not diffusible in that liquid.   After one
fit of vomiting, should another take place after a short interval,
the matter brought up will be little more than water, with a slight
saline impregnation, and some mucus; it will not be found to pos-
sess any power of coagulation; which, Dr Fordyce observes, evi-
dently shews that even water flowing from the exhalants, and
which we should therefore expect would throw off the whole of
any substance from the surface of the stomach, is incapable of de-
taching the gastric juice.'   pp. 25, 26.

The physiology of digestion follows the anatomical view.
The conversion of solid aliments into chyme is first treated
of, and then the modes in which fluids are digested.

‘ It was long supposed, that liquids, like solids, passed through
the pylorus into the small intestine, and were absorbed together
with the chyle, or rejected with the excrement.   It is not asserted
that this never occurs; but it is evident, beyond contradiction, that
there exists another passage by which liquids can be conveyed to
the circulation; for it has been proved, that if a ligature be applied
round the pyloric orifice, in such a manner as to obstruct the pas-
sage into the duodenum, the disappearance of the liquid from the
cavity of the stomach is not so much as retarded.   It is evident,
therefore, that there must exist some other passage, although its
nature and direction remain a matter of conjecture.   I am strongly
persuaded, that the *vena portæ* constitutes one of the avenues
through which liquids enter the circulation; and, in my Pharmaco-
logia, I have expressed my belief,† and supported it by various ar-

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* Dr Prout has lately read a paper before the Royal Society, in order to
prove that the stomach always contains *muriatic acid*.   I shall have occasion to
advert to this fact in a subsequent part of the work.

† Pharmacologia, edit. 6, vol. i. p. 127.

guments, that through this channel certain medicinal bodies find their way into the blood. In order to discover whether drinks are absorbed along with the chyle, M. Majendie made a dog swallow a certain quantity of diluted alcohol during the digestion of his food ; in half an hour afterwards, the chyle was extracted and examined : it exhibited no trace of spirit ; but the blood exhaled a strong odour of it, and by distillation yielded a sensible quantity.

‘ When liquids are introduced into the stomach, the changes which they undergo are determined by the nature of their composition.

‘ When a liquid, holding nutritive matter in solution, is introduced into the stomach, it is either coagulated by the gastric juice, or its watery part is absorbed, and the solid matter deposited in the stomach ; in both cases the product is afterwards chymified in the manner already described. Milk appears to be the only liquid aliment which nature has prepared for our nourishment ; but it seems that she has, at the same time, provided an agent for rendering it solid ; hence we may conclude that this form is an indispensable condition of bodies which are destined to undergo the processes of chymification and chylification ; and that, unless some provision had existed for the removal of aqueous fluid from the stomach, the digestive functions could not have been properly performed. When the broth of meat is introduced into the stomach, the watery part is carried off, and the gelatine, albumen, and fat are then converted into chyme. Wine and fermented liquors undergo a similar change ; the alcohol which they contain coagulates a portion of the gastric juices, and this residue, together with the extractive matter, gum, resin, and other principles which the liquid may contain, are then digested. Under certain circumstances these liquids may observe a different law of decomposition, which will perhaps in some measure explain the different effects which such potations will produce : for example, the spirit may undergo a partial change in the stomach, and be even digested with the solid matter, or, on some occasions, converted into an acid by a fermentative process : this will be more likely to occur in vinous liquors, which contain ingredients favourable to the production of such a change ; and hence the less permanent and mischievous effects of wines than of spirits.* The liquor termed *punch* will certainly, *cæteris paribus,*

* See Pharmacologia, edit. 6. vol. ii. art. *Vinum.*

produce a less intoxicating effect than an equivalent quantity of
spirit and water: this may be accounted for by supposing that a
portion of the alcohol is digested by the stomach into an acid, a
process which is determined and accelerated by the presence of a
fermentable acid like that of lemon, aided, perhaps, by the saccha-
rine matter.

' Oil, although possessed of the fluid form, does not appear to
observe the law which governs the disposal of these bodies; it is
not absorbed, but is entirely transformed into chyme in the sto-
mach. To effect this, however, it seems essential that the stomach
should be in a state of high energy, or it undergoes chemical de-
composition, and becomes rancid; nor will the stomach, unless it
be educated to it, like those of some northern nations, digest any
considerable quantity of it; and, since it cannot be absorbed, it
must find its exit through the alimentary canal, and consequently
prove laxative.' pp. 65—67.

An inquiry is made respecting the influence of various ali-
ments upon the respiratory organs. Some interesting facts
are stated of the effects of particular articles of food and drink
on the functions of these organs, as experienced by divers;
and from the whole, the author draws the following, which
he regards as the only safe conclusion upon this intricate
subject :—

' 1st, *That animal food proves more stimulant to the lungs than ve-
getable aliment. 2d, That fermented liquors are injurious to these or-
gans, both on account of their general effects upon the circulation, and
their specific action upon the nervous system ; increasing, on the one
hand, the necessity of respiratory changes, and on the other, diminishing
the energies of the organs by which they are accomplished. 3d, That
moderate exercise, hilarity of mind, free ventilation, and abstinence
from fermented liquors, are essentially necessary in that stage of the di-
gestive process at which the chyle is poured into the blood-vessels, in
order to promote the free evolution of carbonic acid.'* p. 71.

The following are long extracts, but they contain much
useful matter, and if not new, we have thought them suffi-
ciently interesting to give them at length :—

' As soon as digestion commences, the blood flows with in-
creased force to the organs destined for its completion; whence,

in delicate persons, the operation is frequently attended with a diminution in the power of the senses, and a slight shiver is even experienced ; the skin becomes contracted, and the insensible perspiration is diminished. As the process, however, proceeds, a reaction takes place ; and, after it is completed, the perspiration becomes free, and often abundant. When the chyle enters the blood, the body becomes enlivened, and the stomach and small intestines having been liberated from their burden, oppose no obstacle to the free indulgence of that desire for activity, which nature has thus instinctively excited for our benefit. Then it is that animals are roused from that repose into which they had subsided during the earlier stages of digestion, and betake themselves to action ; then it is that civilized man feels an aptness for exertion, although he mistakes the nature and object of the impulse, and, as Dr Prout justly observes, is inclined to regard it as nothing more than a healthy sensation by which he is summoned to that occupation to which inclination or duty may prompt him. Thus, instead of being *bodily* active, the studious man receives it as a summons to *mental* exertion ; the indolent man, perhaps, merely to *sit up and enjoy himself ;* the libertine to commence his libations ; and the votary of fashion to attend the crowded circles of gaiety and dissipation : in short, this feeling of renovated energy is used, or abused, in a thousand ways by different individuals, without their ever dreaming that *bodily exercise, and that alone,* is implied by it. The result of which is, that imperfect assimilation, and all its train of consequences, take place.

‘ Some difference of opinion has existed with regard to the utility or mischief of exercise immediately after eating ; but in this question, as in most others of the like nature, the truth will be found to lie between the extremes. Those who, from confounding the effects of gentle with those of exhausting exercise, maintain the necessity of rest for the perfect performance of the digestive process, appeal to the experiment of Sir Busick Harwood, the mere relation of which will be sufficient to negative the inference which they would deduce from its result. The Downing Professor took two pointers, equally hungry and equally well fed ; the one he suffered to lie quiet after his meal, the other he kept for above two hours in constant exercise. On returning home, he had them both killed. In the stomach of the dog that had remained quiet

and asleep, all the food was found chymified ; but in the stomach
of the other dog, the process of digestion had scarcely commenced.
Exercise, let it be remembered, must be measured in relation to
the strength and habits of the individual : we have daily experience
to prove that the husbandman may return to his daily labour, and
the schoolboy to his gambols, immediately after a frugal meal,
without inconvenience or injury ; but the same degree of exercise
to a person of sedentary habits, or of weak stamina, would proba-
bly arrest and subvert the whole process of digestion.   The influ-
ence of habit, in rendering exercise salutary or injurious, is shewn
in a variety of instances : a person who would suffer from the
slightest exertion after dinner, will undertake a fatiguing labour
after breakfast, however solid and copious that meal may have been.
If we assent to the proposition of the Cambridge Professor, we
must in consistency acknowledge, that exercise, *before* a meal, is at
least as injurious as he would lead us to suppose it is *after* a re-
past : for if the valetudinarian take his dinner in a state of fatigue,
he will assuredly experience some impediment in its digestion ;
but are we to argue that, on this account, exercise is neither to pre-
cede nor follow a meal ?   We may as well, without farther discus-
sion, subscribe to the opinion of Hieronymus Cardanus, who, insist-
ing upon the advantages of perfect rest, observes, that *trees live
longer than animals, because they never stir from their places.*' pp.
83—85.

The work properly begins with the 2d part, which treats
of the *Materia Alimentaria*.   But though arrived at length,
after a journey of near a hundred pages, and over an unset-
tled region, to the very and sole district for which he start-
ed ; without a figure, having reached his subject, the author
seems still fearful of precipitating matters ; and discusses
at some length such topics as these ;—*Population depends
upon the quantity, not the quality of food.—Immunity
from disease, how connected with salubrity of diet.—The
views of the Political Economist in direct opposition with
the Physician.—Animal and vegetable diet.—Whether ni-
trogen be an essential element of food.*—We pass over
these, and begin our analysis of this portion of the volume,

with the author's Classification of Aliments.   He distributes
the *Nutrientia* into the nine following classes :—

'Cl. I.   Fibrinous Aliments.   Comprehending the flesh and blood
of various animals, especially such as have arrived at puberty :
venison, beef, mutton, hare.

'Cl. II.   Albuminous.   Eggs ; certain animal matter.

'Cl. III.   Gelatinous Aliments.   The flesh of young animals :
veal, chickens, calf's foot, certain fishes.

'Cl. IV.   Fatty and Oily Aliments.   Animal fats, oils, and but-
ter ; cocoa, &c. ; ducks, pork, geese, eels, &c.

'Cl. V.   Caseous Aliments.   The different kinds of milk, cheese,
&c.

'Cl. VI.   Farinaceous Aliments.   Wheat, barley, oats, rice, rye,
potato ; sago, arrow-root, &c.

'Cl. VII.   Mucilaginous Aliments.   Carrots, turnips, asparagus,
cabbage, &c.

'Cl. VIII.   Sweet Aliments.   The different kinds of sugar, figs,
dates, &c. ; carrots.

'Cl. IX.   Acidulous Aliments.   Oranges, apples, and other
acescent fruits.

'To these we may add Condiments ; such as salt, the varieties of
pepper, mustard, horse-radish, vinegar, &c.

'In classing the different species of potations, we may, in like
manner, be governed by the chemical composition which distin-
guishes them.   They may be arranged under four divisions, viz.

'Cl. I.   Water.   Spring, river, well-water, &c.

'Cl. II.   The Juices and Infusions of Vegetables and Animals.
Whey, tea, coffee, &c.

'Cl. III.   Fermented Liquors.   Wine, beer, &c.

'Cl. IV.   The Alcoholic Liquors, or Spirits.   Alcohol, brandy,
rum, &c.'   p. 101.

There are three topics suggested by what, immediately
follows.   The different degrees of digestibility of various
articles of food ; the manner of cooking or preparing them ;
and the additions ordinarily made to them in culinary pro-
cesses, and while eating them.   Solid animal food is most
readily and effectually disposed of by the healthy stomach.
Wedder, or as we call it *wether* mutton, of five years old, is

regarded the best; ewe mutton next, of two years old.
Beef is equally nutritive, but not quite as easily digested.
The manner of cooking, and the time since the death of the
animal, affect the digestibility.   So does the texture of the
meat.   The author says it must have the *digestive texture*,
without stating what this precisely means; and the explana-
tion, that food must neither be too hard nor too soft, does
not render it much clearer than before.   There are two
agents in digestion particularly noticed.   The one is the
action of the gastric juice; the other, the motions of the
stomach on the mass which the author calls *churning*.   Now,
too solid food will not be as readily acted on by the first, as
a less firm fibre, and a very liquid mass cannot be as rea-
dily *churned*.   Absorption must take place in the latter
case for the removal of the superabundant water in the food,
and this process may not be seasonably performed on ac-
count of the feeble state of the stomach.   Soups, broths,
oils, jellies and the like, are less easily digested, in many
cases, than food of a different texture.   Age, sexes, and ha-
bits of animals, have an influence on the digestibility of their
flesh.   Within certain limits, the more advanced age of ani-
mals increases the toughness of the meat.   We have men-
tioned the best age of mutton.   If too young, as veal, beef,
mutton, and lamb, it is stringy and less digestible.   If the
animal be wild, the flesh is highly nutritive, but more dense
than if domesticated.   Sex has a very striking influence;
the female being more delicate and finer grained, than the
entire male.   Castration increases the resemblance, and the
food is more sapid and more nutritious in these animals.
Every day the testes are allowed to remain in the calf and
lamb, for instance, though totally inactive, injures the de-
licacy of the food.   The mode of killing is an important
item,—hunted meat being the most easy of digestion.   In-
cipient putrefaction does more to diminish the rigidity of the
animal fibre than any thing else.   The author does not say, that
it increases its digestibility; and it is known that one effect
of the gastric juice on food, in this state, is to check putre-
faction.   But such food is more tender, is more perfectly

chewed, and blended with saliva by ordinary chewing, and is thus in a favourable condition for the digestive process.

Cooking.—This was the second topic. The author begins with boiling. This, to be most useful, should neither be continued too long, nor be too fast. To *boil slowly*, in other words, not to boil at all, is the popular and true doctrine. Beef is a good example of the effects of excessive boiling. It is made hard by it, for its albumen is firmly coagulated by the process. It is diminished in size, for the gelatine is softened and quite washed out. Boiling is not the best process for all foods. Young and viscid food, veal, chickens, &c., are best roasted, and are then most digestible. We extract the following :—

'Dr Prout has very justly remarked, that the boiling temperature is too high for a great many of the processes of cooking, and that a lower temperature and a greater time, or a *species of infusion*, are better adapted for most of them. This is notorious with substances intended to be *stewed*, which, even in cookery books, are directed to be *boiled slowly* (that is, not at all), and for a considerable time. The ignorance and prejudice existing on these points is very great, and combated with difficulty; yet, when we take into account their importance, and how intimately they are connected with health, they will be found to deserve no small share of our attention.* The loss occasioned by boiling partly depends upon the melting of the fat, but chiefly from the solution of the gelatine and osmazone: mutton generally loses about one-fifth, and beef about one-fourth, of its original weight. Boiling is particularly applicable to vegetables, rendering them more soluble in the stomach, and depriving them of a considerable quantity of *air*, so injurious to weak stomachs. But, even in this case, the operation may be carried to an injurious extent; thus, potatoes are frequently boiled to the state of a dry, insipid powder, instead of being preserved in that state in which the parts of which they are composed are rendered soft and gelatinous, so as to retain their shape, yet be very easily separated. On the other hand, the cabbage tribe, and carrots, are frequently not boiled long enough, in which state

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* Hence it is, that beef tea and mutton tea are much more calculated for invalids than the broths of these meats.

they are highly indigestible. In conducting this process, it is ne-
cessary to pay some attention to the quality of the water employ-
ed; thus, mutton boiled in hard water is more tender and juicy
than when soft water is used; while vegetables, on the contrary,
are rendered harder and less digestible when boiled in hard water.'
pp. 106, 107.

Roasting.——This evaporates the water, corrugates the
fibrine, coagulates the albumen, and melts the fat of meat.
Under-dressed meat is not as easily digested, as when it is
thoroughly, but not *over-done.* Roasted are more nutritive
than boiled meats.

Frying is the most objectionable of all the culinary ope-
rations. Broiling retains the fluids of meats, and imparts a
peculiar tenderness to it, and is thus an excellent method of
preparation. Baking retains the juices, but it also retains
the oils of meat, and moreover in an empyreumatic state;
and hence, food thus cooked, is less digestible than when
prepared after the preceding methods, if we except frying.

Condiments.——The first spoken of are *bitters.* These
will not detain us, nor salt, of which much interesting mat-
ter may be found in our author. No body doubts its im-
portance, and, where it is entirely withheld, the conse-
quences are always bad. We make an extract on the use
of salted provisions.

‘ If the utility of salt be thus established, it may be asked, how
it can happen that salted provisions should ever produce those dis-
eases which experience has shewn to arise from their use? It is
true that a certain proportion of this condiment is not only useful
but indispensable; but an excess of it is as injurious as its mode-
rate application is salutary. This observation applies with as
much force to the vegetable as to the animal kingdom; a small
proportion applied as a manure, promotes vegetation in a very re-
markable manner; whereas a larger quantity actually destroys it.
The experiments of Sir John Pringle have also shewn, that a little
salt will accelerate putrefaction, and a large quantity prevent it.
In explaining the operation of *salting* meat, and in appreciating
the effects of such meat as food, it will be necessary to advert to a
chemical fact which has not hitherto attracted the attention which

its importance merits. The salt thus combined with the animal fibre ought no longer to be considered as the condiment upon which so much has been said; a chemical combination has taken place, and, although it is difficult to explain the nature of the affinities which have been brought into action, or that of the compound to which they have given origin, it is sufficiently evident that the texture of the fibre is so changed as to be less nutritive, as well as less digestible. If we are called upon to produce any chemical evidence in support of such an assertion, we need only relate the experiment of M. Eller, who found, that if salt and water be boiled in a copper vessel, the solution will contain a notable quantity of that metal; whereas, if, instead of heating a simple solution, the salt be previously mixed with beef, bacon, or fish, the fluid resulting from it will not contain an atom of copper. Does not this prove that the process of salting meat is something more than the mere saturation of the animal fibre with muriate of soda?' pp. 112, 113.

The remaining remarks under this head are on vinegar, aromatic condiments, and oil.

Drinks.—Solid food is eaten to repair the waste of the different textures of the body; drinks to supply the wasted fluids. Drinks then are aliments. The temperature, the quantity, and times of drinking are first noticed, and in regard to their effects upon dyspeptics. Drinks of the temperature of the body are the best for this class of patients. If heated much higher, their first effect may be, and frequently is, grateful, but it induces an augmented suffering, by increasing the debility of the stomach, and rendering it less capable of after-digestion. There are exceptions, we are disposed to think, to this remark. We remember dyspeptics who have quite recovered the tone of the stomach, who have not experienced the ill effects from hot liquids here mentioned. The remarks of the author on this point, however, correspond to the general views in his work on the use of stimuli. He properly objects to the use of excessively cold drinks, iced fluids, for instance, by those who have delicate stomachs. He does not believe that hot drinks injure the teeth. Much useful matter occurs under

the *volume* or quantity of liquid ingesta. The quantity should not be great. It should never be excessive, with a view to aid digestion. Different aliments require different quantities. Animal food requires more than vegetable, roasted than boiled, and baked still more than roasted. Next of time of drinking.

' By drinking *before* a meal, we place the stomach in a very unfit condition for the duties it has to perform. By drinking *during* a meal, we shall assist digestion, if the solid matter be of a nature to require it; and impede it, if the quantity taken renders the mass too liquid. Those physicians, therefore, who have insisted upon the necessity of a total abstinence of liquid during a meal, appear to have forgotten that every general rule must be regulated by circumstances. The best test of its necessity is afforded by the sensations of the individual, which ought not to be disregarded merely because they appear in opposition to some preconceived theory. The valetudinarian who, without the feeling of thirst, drinks during a meal because he has heard that it assists digestion; and he who abstains from liquid, in opposition to this feeling, in consequence of the clamour which the partisans of a popular lecturer have raised against the custom; will equally err, and contribute to the increase of the evil they so anxiously seek to obviate. Dr W. Philip has stated a fact, the truth of which my own experience justifies, that " eating too fast causes thirst; for the food being swallowed without a due admixture of saliva, the mass formed in the stomach is too dry." I may conclude these remarks by observing, that as hunger and thirst are, to a certain extent, incompatible sensations, it is probable that nature intended that the appetite for food should first be satisfied, before a supply of drink becomes necessary; and if our food possess that degree of succulence which characterises digestible aliment, there will be no occasion for it. But, under any circumstances, the quantity taken should be small: it is during the intervals of our solid meals that the liquid necessary for the repair of our fluids should be taken; and both theory and experience appear in this respect to conform, and to demonstrate the advantage which attends a liquid repast about four or five hours after the solid meal.' pp. 118, 119.

Quality.—And first of *water.*

' Water is unquestionably the natural beverage of man; but any

objection against the use of other beverages, founded on their ar-
tificial origin, I should at once repel by the same argument which
has been adduced in defence of cookery. We are to consider
man as he is, not as he might have been, had he never forsaken
the rude path of nature. I am willing to confess, that " the more
simply life is supported, and the less stimulus we use, the better;
and that he is happy who considers water the best drink, and salt
the best sauce:" but how rarely does a physician find a patient
who has regulated his life by such a maxim! He is generally call-
upon to reform stomachs, already vitiated by bad habits, and which
cannot, without much discipline, be reconciled to simple and heal-
thy aliment. Under such circumstances, nothing can be more in-
judicious than abruptly to withdraw the accustomed stimuli, unless
it can be shewn that they are absolutely injurious; a question
which it will be my duty to investigate hereafter.' pp. 119, 120.

We have next a description of various kinds of water.
Rain water, collected in the open fields, is the purest; of
spring water, that which is supplied from large springs is
better than from smaller ones. *Soft* water cooks and aids
the digestion of vegetables better than *hard* water. River
water is tolerably pure; but the common notion, that the
Thames water of London is peculiarly adapted for the brew-
ery of porter, is entirely unfounded. This water *is never*
used in the London breweries. Well, and snow, and ice
water, are about equally pure. Lake, and marsh water, are
not wholesome.

The means of conveying water to cities, and of procuring
it from wells, offer very interesting matter of inquiry, and
have a place in our author. To us, in this part of the
country, the subject is very interesting. We are not sup-
plied with good or sufficient water. A just tribute is paid
the ancients for their admirable arrangements for an abun-
dant, unfailing supply of pure water for their cities. The
question is treated, how far leaden pipes are injurious as
conductors of water. We have not room for the discussion;
but as the subject is a very important one, we make some
extracts :—

' Palladius testifies his aversion to the use of lead, as apt to be-

come covered with cerusse, and thereby rendered poisonous; and Vitruvius and Columella recommend pipes of earthenware, as not only cheaper but *more wholesome* than those of lead. Dr Lambe, to whom we are indebted for an important work* upon this subject, states, that there is a great diversity in the corrosive powers of different waters: in some places the use of leaden pumps has been discontinued, from the expense entailed upon the proprietors by the perpetual want of repair. Dr Lambe states an instance where the proprietor of a well ordered his plumber to make the lead of a pump of double the thickness of the metal usually employed on such occasions, to save the charge of repairs; because he had observed that *the water was so hard*, as he called it, *that it corroded the lead very soon*. If any acidity be communicated to the water, from the accidental intrusion of decayed leaves or other vegetable matter, its power of dissolving this metal will be increased to a very dangerous extent. The noted colic of Amsterdam is said by Tronchin, who has written a history of the epidemic, to have been occasioned by leaves falling and putrefying in leaden cisterns filled with rain water. Van Swieten has also related an instance of a whole family who were afflicted with colic from a similar cause;† and Dr Lambe entertains no doubt, but that the very striking case recorded in the Medical Commentaries‡ proceeded more from some foulness in the cistern, than from the solvent power of the water. In this instance, the officers of a packet vessel used water out of a leaden cistern; the men also drank the same water, except that the latter had been kept in wood: the consequence was, that all the officers were seized with colic, while the men remained healthy. Sir George Baker has furnished the following striking illustration of this subject :—" The most remarkable case that now occurs to my memory," says he, " is that of Lord Ashburnham's family, in Sussex; to which spring water was supplied from a considerable distance in leaden pipes. In consequence, his lordship's servants were every year tormented with colic, and some of them died. An eminent physician of Battle,

* Researches into the Properties of Spring Water, with Medical Cautions against the Use of Lead.

† Van Swieten ad Boerhaav. Aphor. 1060, Comment.

‡ Duncan Med. Comment., Dec. 2, 1794.

who corresponded with me on the subject, sent up some gallons of
that water, which were analysed by Dr Higgins, who reported
that the water had contained more than the common proportion of
carbonic acid; and that he found in it lead in solution, which he
attributed to the action of the carbonic acid. In consequence of
this representation, Lord Ashburnham substituted wooden for
leaden pipes; and from that time his family have experienced no
particular complaints in their bowels." As timber pipes are liable
to decay, and to impart a bad taste to the water, those made of cast-
iron are to be greatly preferred.' pp. 124—126.

To purify water, filtering-stones are used. This does not
remove its *hardness.* Charcoal powder has been used,
and boiling is also a means. In China, water is always
boiled before it is drunk. Some vegetable bitter, boiled in
water, answers a good purpose; and Virey supposes the
Chinese were led by a knowledge of this, to infuse the
leaves of the tea plant. Toast water is found to sit
easily on stomachs which will not bear pure water. Barley
water is commended, and *gruel* has a paragraph.

' *Gruel.*—Oats, when freed from their cuticle, are called *groats;*
in which state, as well as when ground into meal, they yield to
water, by coction, the fecula they contain, and form a nutritious
gruel, which has also the property of being slightly aperient.
It should never be kept longer than forty-eight hours, as it be-
comes acescent after that period. Gruel may be made of a diffe-
rent degree of consistence, according to the object of its potation.
If it be used as a demulcent drink, it should be thin; and may be
made, as Dr Kitchener, our culinary censor, informs us, by mixing
well together, by degrees, in a pint basin, *one* table-spoonful of
oatmeal with three of cold water, and then adding carefully a pint
of boiling water, which is to be boiled for five minutes, stirring it
all the time, to prevent the oatmeal from burning at the bottom of
the stewpan; then strain through a hair sieve, to separate the un-
dissolved parts of the meal from the gruel. If a more substantial
repast is required, double the above quantity of oatmeal must be
treated in a similar manner. To increase the nutritive quality of
this aliment, broth or milk may be substituted for water. Some
persons are in the habit of introducing a piece of butter into gruel;

but the propriety of this practice is questionable, where the sto-
mach is disposed to generate acidity.' p. 128.

Tea.—'When drank four hours after the principal meal, it will
assist the ulterior stages of digestion, as already explained, and
promote the insensible perspiration ; while it will afford to the
stomach a grateful stimulus after its labours. With regard to the
objection urged against its use, on the ground of temperature, it
will be only necessary to refer to the observations which have
been already offered upon this subject. In enumerating, however,
the advantages of tea, it must not be forgotten that it has intro-
duced and cherished a spirit of sobriety ; and it must have been
remarked by every physician of general practice, that those per-
sons who dislike tea, frequently supply its place by spirit and wa-
ter. The addition of milk certainly diminishes the astringency of
tea ; that of sugar may please the palate, but cannot modify the
virtues of the infusion.' p. 130.

Coffee.—This is a more powerful stimulant than tea.

'If taken immediately after a meal, it is not found to create that
disturbance in its digestion which has been noticed as the occa-
sional consequence of tea ; on the contrary, it accelerates the ope-
rations of the stomach, and will frequently enable the dyspeptic to
digest substances, such as fat and oily aliment, which would other-
wise occasion much disturbance.' 'Where our object is to admi-
nister it as a promoter of digestion, it should be carefully made by
infusion ; decoction dissipates its aroma. The addition of milk is
one of questionable propriety ; that of sugar, or rather sugar-
candy, may be allowed.'* pp. 130, 131.

Chocolate is food rather than drink. It contains an oil
which is difficult of assimilation, and oppresses a feeble sto-

* Coffee has been often imitated by the torrefaction of various grains. In the
'*Fourth Century of Observations,*' in the '*Miscellanea Curiosa,*' we find a cri-
tical dissertation on the coffee of the Arabians, and on European coffee, or such
as may be prepared from grain or pulse. Dillenius gives an account of his own
preparations made with peas, beans, and kidney-beans ; but says that made of
rye comes nearest to true coffee, and was with difficulty distinguished from it.
This fact is curious, inasmuch as a spurious coffee has been lately vended, which
is nothing more than roasted rye. The article is well known, under the name of
'Hunt's Economical Breakfast Powder.'

mach.   Cocoa has less of this oil, and is more easily digested.

'*Soda Water.*—The modern custom of drinking this inviting beverage during, or immediately after dinner, has been a pregnant source of dyspepsia.   By inflating the stomach at such a period, we inevitably counteract those muscular contractions of its coats which are essential to chymification.   The quantity of soda thus introduced scarcely deserves notice: with the exception of the *carbonic acid gas*,* it may be regarded as water, more mischievous only in consequence of the exhilarating quality inducing us to take it at a period at which we should not require the more simple fluid.' pp. 132, 133.

Fermented Liquors.—Under this head much interesting remark occurs.   We are limited, however, to the notice of such parts only as have an especial regard to diet, particularly to the use of such drinks by the invalid.   Wines are divided into four classes; viz. *sweet, sparkling, dry and light, and dry and strong*.   Of the first, the *sweet*, Dr Paris remarks, ' on account of the sugar contained in such wines, they are liable to become acescent on weak stomachs; but where this is not the case, they are, in small quantities, frequently beneficial to invalids.' p. 114.   Claret belongs to the third class, and is much commended.   '*Genuine* claret must be considered as the most beneficial of all our vinous liquors; it is well fermented ; and on account of the small quantity of spirit, as well as extractine, which it contains, it is more salubrious than Port.'

Beer.—We did not know, before meeting with it in this author, that beer is made in America of maize, Indian corn ;† and of rice, in China.   We extract the history of porter.

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* Late discoveries have shewn, that the carbonic acid exists in a liquid state in soda water; when, therefore, it is hastily swallowed, it robs the stomach of a certain portion of heat, as it passes from a liquid into a gaseous state.   It therefore cools as well as distends that organ.

† Sometimes, but rarely, and only during a scarcity of barley, Indian corn is used by some of our brewers, in making beer.   The quantity is one third maize to two-thirds barley.   In some parts of the country, maize is not used at all.—Ed.

'The origin of the beer called *entire* is to be thus explained :—
Before the year 1730, the malt liquors in general use in London
were ale, beer, and two-penny ; and it was customary to call for a
pint, or tankard, of half-and-half, *i. e.* half of ale and half of beer,
half of ale and half of two-penny. In course of time, it also be-
came the practice to call for a pint or tankard of *three-threads*,
meaning a third of ale, beer, and two-penny ; and thus the publican
had the trouble to go to three casks, and turn three cocks, for a
pint of liquor. To avoid this inconvenience and waste, a brewer,
of the name of Harwood, conceived the idea of making a liquor
which should partake of the same united flavours of ale, beer, and
two-penny. He did so, and succeeded, calling it *entire*, or *entire
butt*, meaning that it was drawn entirely from one cask or butt ;
and, as it was a very hearty and nourishing liquor, and supposed to
be very suitable for porters and other working people, it obtained
the name of " Porter." ' pp. 149, 150.

Under the head of *Ardent Spirits*, we have some excel-
lent remarks on the injurious effects of ardent spirits. Of
their medicinal use, the author observes :—

'In a medical point of view, however, spirit may be considered
as occasionally useful. Where it is taken in a diluted state, the
mixture should always be made twelve hours before it is used.
Spirit and water do not easily combine ; and much of the force of
the former is blunted by intimate incorporation with the latter, as
we have already observed, under the history of wine. I throw
out this hint to those who are in the habit of drinking weak brandy
and water at their meals ; although the propriety of such a prac-
tice is very questionable. There are cases of dyspepsia, in which
wine and beer equally disagree with the stomach, producing aci-
dity, and other distressing symptoms : very weak spirit in such a
case may, perhaps, be taken with advantage ; but its strength
should be uniform, and no circumstances should induce the patient
to increase the proportion of the spirit. The habit of drinking
liqueurs cannot be too loudly reprobated ; many of these *cordials*
are impregnated with narcotic substances, which add to the noxious
qualities of the spirit.' p. 150.

'*An estimate of the nutritive and digestible qualities of several
species of aliment, as derived from the application of the physio-*

logical and chemical principles established in the preceding pages.'
The first article of aliment noticed under this head is *Milk*.
This substance is the only nutritive fluid with which nature
has presented us. It contains an ingredient which is immedi-
ately coagulated by the stomach, and another which remains
permanently liquid, and this latter is in excess. From this
latter fact, the author draws the following general principle,
viz. that a necessity exists of a greater portion of fluid than
of solid matter, for the reparation of that habitual waste,
upon which the necessity of alimentary supplies is founded.
We use the author's language. We are not disposed to 'try
conclusions' with him on this point, and pass on. He gives
the proportions of the various constituents of milk, and the
history of those which a spontaneous separation affords. In
regard to digestibility, it seems that milk, in its natural state,
is more easily digested than the parts when used separately.
Thus the curd, and especially that form of it which is cheese,.
is the least digestible. Objections are also made to butter
and whey. These apply, however, to weak stomachs. In
these, the whole milk is thought to agree better than any of
its parts. Not that milk, however, is recommended as al-
ways, or frequently, the best food in such cases. The effect
of boiling on milk renders it light to some stomachs, which
cannot bear it unboiled. Boiling produces a pellicle on the
surface of milk. This is a portion of coagulated albumen.
This, if removed, is replaced by another, and in this way
the whole of the albumen may be abstracted. Milk is made
less nutritious by this process, but it becomes in some cases
more digestible.

'Milk, in its dietetic relations, may be considered as interme-
diate between animal and vegetable food; it is easily assimilated,
and therefore affords a quick supply of aliment to the system,
while it does not excite that degree of vascular action which is
produced by other animal matters. Its nutritive powers may be
increased by various additions, which have also, on some occasions,
the effect of correcting its natural tendency to acidity, and on
others, that of obviating the costiveness which it is liable to occa-
sion; such objects are sometimes fulfilled by adding oatmeal gruel

to it.   In certain states of organic disease, I have found that milk, impregnated with the fatty matter of mutton suet, is a valuable article of diet: such a repast is best prepared by inserting the suet in a muslin bag, and then simmering it with the milk.   In common cases of dyspepsia it would prove injurious, for the reasons so often alluded to in the course of this work: but where it is an object to introduce much nutritive matter in a small space, I am not acquainted with a better form of aliment.   With some practitioners it is a custom to recommend an admixture of lime water with milk, to prevent the acidity which it is apt to create in feeble stomachs. I have occasionally experienced the benefit of such a practice, especially in cases of *tabes mesenterica.*' p. 156.

Eggs rank next to milk, or are less nutritious.   They are least digestible raw, but are sometimes cathartic in this state.   They are most easily digested when very slightly cooked.   Fish have a long chapter; and the author has discovered much skill in his art, in the nice distinctions he makes between the different kinds.   They are less nutritious than meat.   Colour and season affect their digestibility. In other words, fish with white fibre, such as cod, haddock, &c. are more readily digested, and particularly where the stomach is not very strong, than the coloured fishes, the salmon, trout, &c.   Fish, it is well known, are least palatable and least digestible at the period of spawning.   Oysters are especially affected by this process, and are sick, poor, and soft for some time afterwards.   Thus they cast the *spat*, as the dredgers in England call it, in May, and are not in a state to eat till August, when they are perfectly well.   The best mode of cooking fish is boiling, the best condiments salt and vinegar, and the best vegetable with them is potato.   There are some decided incompatibles, and among these the author names fruit and milk.   From the facts that a fish diet is less nutritious and stimulating than other forms of animal food, it is peculiarly suited to those diseases, in which nourishment is desirable at as little expense from excitement as possible.   We remember meeting, in a manuscript copy of Dr William Hunter's Lectures on Midwifery, with a strong recommendation of this diet, if any

animal food was used, in some of the chronic and disastrous affections of the womb, such as scirrhus and cancer of this organ.

The digestibility of the flesh of birds has some connexion with colour, age, and habits. As a general rule, the white meat of domesticated birds is less digestible than the same of wild birds. It is also less nutritious, but less stimulating. It forms therefore a suitable diet for the invalid and convalescent when animal is indicated.

Bread.——We extract the following respecting the dietetic uses of this important article of food :——

' The importance of bread, as an article of diet, will be easily deduced from the principles upon which the digestion of food in the stomach has been already explained. In addition to its nutritive qualities, it performs a mechanical duty of some importance. It serves to divide the food, and to impart a suitable bulk and consistence to it; it is therefore more necessary to conjoin it with articles containing much aliment in a small space than where the food is both bulky and nutritive. The concentrated cookery of the French is rendered much more wholesome from the large quantity of bread which that people use at their meals. I know from personal experience how greatly this habit can correct the evil which arises from rich soups and ragouts. If I eat a rich soup without a considerable quantity of stale bread, I inevitably suffer from heartburn; but it never offends my stomach when taken with such a precaution. Bread should never be eaten new ; in such a state it swells like a sponge in the stomach, and proves very indigestible. Care should also be taken to obtain bread that has been duly baked. Unless all its parts are intimately mixed, and the fixed air expelled, it will be apt, in very small quantities, to produce acescency and indigestion. After stating the advantages of bread, it is necessary to make a few observations upon the evils which it may occasionally produce ; in certain diseases it evidently produces a tendency to acidity : we have daily instances of this fact in children, in whom acidity and much alimentary disturbance follow its use. In early life it is scarcely admissible, on account of the flatulence and costiveness which it produces; and even at a more advanced period it gives children a pale countenance, and breeds

worms. Shebbeare goes so far as to say, that the rickets are so common in France only because the quantity of bread given to children is excessive ; which, by its acidity, destroys the calcareous substance of the bones, and reduces them to a state of cartilage This is mere idle speculation, which is in direct variance with the received opinions upon the subject. Where acidity occurs, the bread should be toasted, or well-prepared biscuit substituted. I shall have occasion to state, in a subsequent part of this work, that striking changes in the urinary deposits may be produced by suspending the use of bread, and giving biscuit in its place.' pp. 172, 173.

Rice is commended, and so are tapioca, sago, arrow root, &c. These last are very useful where more substantial aliment is rejected, or is improper ; and as vehicles for vinous stimulants. *Pulses*, peas, and beans, are less digestible than the grains or seeds, and are to be avoided by dyspeptics.

Esculent Roots.—These are of two kinds ; such as are used for food, as turnips, carrots, parsnips, radishes, &c. ; and condiments, viz. onions, garlic, horse-radish, &c. We make an extract respecting the onion.

' The ONION, however, although classed under this latter division, and must be considered as valuable on account of its stimulating matter, certainly contains a considerable proportion of nourishment. This appears evident in their boiled state, by which process their acrimony is exhaled, and a sweet mucilage separated. Sir John Sinclair says, that it is a well-known fact, that a Highlander, with a few raw onions in his pocket, and a crust of bread, or some oat-cake, can travel to an almost incredible extent, for two or three days together, without any other sort of food. The French are fully aware of the quantity of nourishment this plant affords ; hence the soup *à l'oignon* is considered by them as the best of all restoratives. As a stimulant to the stomach and bowels, the onion, in a raw state, is certainly of value, and this is much enhanced by its diuretic qualities.' p. 180.

Of *Fruits* we can offer but little. Of stone fruits, the peach enjoys a high rank for its delicacy and its digestibility ; the apricot next, and the nectarine the lowest. ' The orange, when perfectly ripe, may be allowed to the most fas-

tidious dyspeptic ; but the white, or inner skin, should be scrupulously rejected, for it is not more digestible than leather.'   p. 184.

'The most proper periods for indulgence in fruit appear to be the morning and evening. On some occasions it may be taken with advantage at breakfast, or three hours before dinner, and it affords a light and agreeable repast if taken an hour before bedtime ; but these regulations are to be influenced by circumstances which no general rule can possibly embrace.'   p. 184.

The author has now reached an important part of his subject : The best periods for meals ; and the proper intervals between them. Much difference of opinion exists on these points. One says, the best time for a rich man to dine, is when he can get an appetite ; and for a poor one, when he can get food. Another recommends a little food at a time, but often. Dr Temple said, 'The stomach of an invalid is like a schoolboy, always at mischief unless it be employed.' A very bad doctrine indeed. There has been much dispute about the number of meals. Some recommend one, others think two, three, or even five, necessary. The author thinks, that the invalid may take three frugal meals a-day, and even four, if he take exercise. The healthy may do the same. The next questions are the times when ? and the composition of the meals. The times are morning, noon and night ; the meals, breakfast, dinner and supper ; and the articles very much such as are in common use, for the healthy, and for the invalid, such as he can most easily digest. The quantity of food at a meal, for any body, sick or well, cannot be regulated beforehand. It must be determined by a careful observation of the effects a given allowance produces. Much less can it be laid down in a book. It is the subject next treated by the author, and his views respecting it are quite sensible. The following, from Dr Philip, is worth remembering :—

'The dyspeptic should carefully attend to the first feeling of satiety. There is a moment when the relish given by the appetite ceases : a single mouthful taken after this, oppresses a weak stomach. If he eats slowly, and carefully attends to this feeling, he will never overload the stomach.'   p. 197.

We would, with great pleasure, quote much respecting *exercise*, in regard to its effects on the health generally, and to its uses as an agent in digestion. The remarks apply to valetudinarians and dyspeptics. These are never to take the principal meal in a state of fatigue. Neither are they to avoid moderate exercise before dinner. Weather is never to prevent him who requires exercise from taking it. He must protect himself if he can, but he must exercise. Mr Abernethy says, if the weather will not permit motion abroad, the windows of the room are to be opened, and the patient walk freely within doors. Horseback exercise, walking, and especially *digging*, are recommended. Where visceral congestion exists, the latter has been found particularly salutary. Standing, as at a desk in writing, has been found useful in obviating costiveness. The author introduces here some cautions against the use of gas in lighting houses, and from Sir H. Davy's experiment on himself, of inspiring carburetted hydrogen, which well nigh proved fatal, infers that gas cannot be safely used for lighting houses. He concludes this article by questioning the propriety of sleeping after dinner. This part of the volume closes with a chapter ' On the influence of different aliments in modifying the appearance of the discharges of the body.' The third part treats of Indigestion.

Our purpose in this review of Dr Paris' labours on Diet, has been to give our readers, in a short compass, the important facts contained in this volume on this subject. The last part is deferred. Our labour in this humble office has not been a light one. We do not profess to have done it so faithfully as to render the whole work less interesting to our readers. If we have at all succeeded in our object, they will be the more anxious to read the whole work, and we beg to recommend it to them. Dr Paris is a practical and a popular writer. This is a book of detail, and it would not have been valuable at all if it had been less so. It does not belong to the highest department of medical literature ; but it has an alliance with practical medicine, the every-day duty of the physician, which recommends it to his notice, and which will amply reward him for the expense and the time which its possession and study may impose upon him.

III.

1. *American Modern Practice: or, a simple method of Preven-*
tion and Cure of Diseases, according to the latest improve-
ments and discoveries, comprising a Practical System adapted
to the use of medical practitioners of the United States. To
which is added, An Appendix, containing an account of many
domestic remedies recently introduced into practice, and some
approved Formulæ, applicable to the diseases of our Climate.
A New Edition, improved. By JAMES THACHER, M.D.
A.A.S. Author of the American New Dispensatory, and
Observations on Hydrophobia. Boston : Cottons & Bar-
nard. 1826. pp. 785.

2. *Treatise on the Theory and Practice of Physic.* By GEORGE
GREGORY, M.D. *With Notes and Additions, adapted to the*
Practice of the United States. By NATHAN POTTER, M.D.
Professor of the Practice of Physic in the University of
Maryland, and S. COLHOUN, M.D. Member of the Ame-
rican Philosophical Society, &c.—' *In morbis, sive acutis,*
sive chronicis, viget occultum quid, per humanas speculationes
fere incomprehensibile.'—BAGLIVI. In 2 Vols. Philadel-
phia, 1826. pp. xxxiv. 532. 546.

THESE works are in a sense American. One of them, the
first, is a compilation, but made here. The other is an ori-
ginal work, as far as that can be the case in such works, and
by a foreigner ; but it is edited by two physicians of our
own country, who have added notes, which are designed to
make it more useful to the profession here, and have occa-
sionally interspersed corrections of what seemed to them
erroneous. These circumstances in the literary history of
these volumes, while they claim for them a notice in our
works of professional criticism, have given them an interest
to us, which we are quite willing to acknowledge. They
belong to our literature ; and as it will always give us plea-
sure to contribute our share to make our readers acquainted
with its progress, we perhaps cannot do this in a better

way, than by noticing the contributions which are made to
it, as we receive them.

Different opinions are held respecting this description of
books. By some they have been thought useful, and by
others useless or injurious. They are sometimes designed
to bring together, in a short compass, what has been long
known and established, along with the great or leading
changes which may have occurred in the modes of ex-
plaining diseases, and in the manner of treating them.
When made to conform to this design, they are offered to
the profession;—to those who have read much, and at a
somewhat remote period, and are unacquainted with the
useful changes the art has undergone ; and they are offered
to those likewise, who have never been readers, and who
must find a short road to knowledge, if they find one at all.
They are sometimes designed for the whole public, for
people out of the profession as well as for people in it.
When this is the plan, a popular character prevails through-
out. The language is free of technicalities, and as much
simplicity is adopted in the whole making up of the works
as the case admits of. Finally, they are intended for pupils.

This class of books has greatly increased amongst us, and
within a very few years. For a time we were satisfied with
Thomas's Domestic Medicine in its English dress. When
this ceased to be the case, and to multiply copies here, it was
adapted to American practice. We believe ' American Mo-
dern Practice' followed, of which one of the works at our head
is a new edition. Good's ' Study of Medicine' succeeded, and
of this four American editions have already appeared. Gre-
gory's ' Treatise of the Theory and Practice' came next, and
in close company with the present edition of ' American Mo-
dern Practice.' Surgery made easy, in the form of dictiona-
ries and systems, should not be omitted, in an enumeration of
the multiplied helps to practice which have been compiled or
edited amongst us. This is by no means a complete list ; it
only contains some of the larger, and more popular works, of
the character of which we propose to give some very brief
notice. It is obvious, that little more than this should be at-

tempted. The briefest abstract, or analysis, of the two at
our hand, would occupy a very disproportionate part of the
journal; and as they are designed, in their own narrow
limits, to offer, general indeed, but practical views of medi-
cal literature in its fullest extent, an abridgment would be a
vain labour.

It is unnecessary to say any thing here of Thomas' work.
We may devote a passing remark to it by and by. The
'Study of Medicine' has been noticed before. In the latest
edition, this work has been very carefully revised, and many
additions made. It now consists of five octavo volumes,
each containing on an average between six and seven hun-
dred well filled pages. We have always regarded this
as an excellent work in its kind. It may almost be called
a Thesaurus of medical literature. Its views of the best
works, and in great numbers too, give a very true notion of
them; and the references are so full, that if the use the
author has made of these works be regarded in any consi-
derable degree as evidence of their value, his work may be
considered as a very valuable addition to medical bibliogra-
phy. The extent of this work is a recommendation. The
shorter compilations give very brief, and it may be partial
views; and if they are as much used for study, as we are
disposed to think they are, and for getting that knowledge
on which a man is to rely in practice, they can furnish but
very little, though that little may not be bad. The 'Study
of Medicine' affords by itself a great deal; but what is bet-
ter praise, it points out the original sources of knowledge,
and leads the student directly to what it most concerns him
to know. It contains a great deal of general anatomy; and
its information is always the latest, where this may be most
relied on. The arrangement is a natural one; and if there
be imperfections to be discovered in it, these belong very
much to the state of knowledge upon the great subjects
treated in the work. If this be imperfect, as it unquestion-
ably is, it might seem to the author a less evil to place
some diseases where they do not strictly belong, than to re-
ject them altogether. It has been objected to Dr Good,

that he is not a practical man ; that he has devoted more of his life to the medicine of books, than to a personal observation of the sick.   How far this may be true, we know not.   That he has been a student cannot be doubted.   His literary labours out of the profession have hardly been exceeded in amount by those in it.   But there is abundant evidence in these last, that so much of his time has been given to medicine, that he who is judicious in the use of his works, is in no danger of being injured by the labour.   We should not put this work into the hands of a student in the beginning of his studies ; not certainly before he was well grounded in anatomy, physiology, chemistry, and materia medica.   Next to these, he should study the general doctrines of fever and inflammation, and afterwards some of the best works which treat of individual diseases, which fall under these general divisions.   After this, such a work as the ' Study of Medicine' will be read with great advantage.   It brings to view, in a moderate compass, and under a good arrangement, much indeed that has been already studied, but never before more usefully arranged.   At a later period of the study of preparation, and especially as a book of reference, in the midst of practice, this work will still be highly useful.

The author of the ' American Modern Practice,' entitles his work, a ' Simple Method of Prevention and Cure of Diseases ;' a ' Practical System adapted to the use of medical practitioners of the United States ;' containing domestic remedies, and approved formulæ adapted to the diseases of our climate.   In the preface, the author regrets that we should so long have been destitute of a systematic work on the practice of medicine, and finds occasion for this regret, in the admitted peculiarities of diseases of different climates. Honourable mention is made of the rapid progress of medical science within a few years amongst us.   Dr Thomas' Modern Practice has a passing tribute ; and reasons are offered for employing Professor Hosack's nosology in preference to Dr Good's.   Great plainness of style is used, that the work may be more extensively useful.   The author

hopes that his ' work will be found calculated to assist those
practitioners, whose retired residence may preclude them
from the most ample sources of information, as well as the
junior class, who are about commencing their professional
career, as the pledge and hope of the rising generation.
To inculcate the high importance of a complete medical edu-
cation, agreeably to the established rules of our universities
and medical institutions, and to discountenance the attempt
of the illiterate, who would thrust themselves into medical
practice, are among the primary objects of this production.
In the appendix will be found a collection of formulæ for the
convenience of the young practitioner.'—*Preface*, p. viii.

From these extracts, we learn what may be looked for in
this volume, and for what classes of readers it is principally
designed. It is a work on the practice of medicine, in al-
most a literal sense. There are indeed short pathological
notices, which precede the treatment of diseases, but these
are obviously not designed to teach pathology; and it would
have much diminished the size of the volume, without per-
haps seriously diminishing its usefulness, if these had occu-
pied less room. The author does not propose to teach medi-
cine, in the highest and truest sense of the word, but to offer,
in a more or less condensed form, sometimes minute details of
practice, and sometimes merely general therapeutic princi-
ples. In this view, his work may frequently be of use to one
or two of the classes of readers above indicated. There is one
word in the title, which we should have preferred not to have
seen there; we mean the word ' simple,' in its connexion
with the method of prevention and cure. As far as the
well-educated physician is concerned, in the publication or
use of this volume, the term seems unnecessary. He is
acquainted with all known methods, or is supposed to be so,
when he enters on the business of his calling. What is best,
is to him the most simple; and this question he must settle
for himself, from a faithful study of all that is best within his
reach, especially of all the original sources of knowledge.
It may seem that much of this might be learned in a shorter
way; but we believe, that there is great fallacy in this doc-

trine, and that, when practically acted on, it produces only
superficial and erroneous opinions, and an inefficient and in-
jurious practice.   We have too much respect for the author
to suppose, for a moment, that he had in view, in this use of
his term, to make his work a popular system; a guide for
the multitude as well as for physicians; and it was from this
conviction, that we thought the term unnecessary.

There is one opinion which has long been popular in this
country, and which is maintained by the author, concerning
which we have always entertained some doubts. According to
this doctrine, the diseases of different countries, however near-
ly parallel these may be to each other, undergo such modifica-
tions, by the circumstance of distance principally, as not on-
ly to require a modified treatment, but in some respects dif-
ferent pathological explanations..   That something of this
obtains, there can be no question.   Thus the extremes of
temperature, particularly of heat, have confessedly a vast in-
fluence upon the character of diseases.   Nay, this agent,
extreme heat, gives a character to them, making them fre-
quently just what they are; and where this agent does not
exist in the extremes referred to, these diseases do not ap-
pear, or if accidentally brought into such a climate, they do
not communicate themselves to others.   We allude here to
tropical diseases, and their accidental introduction into healthy
places of a permanently lower temperature.   With this, and
perhaps one or two other exceptions, we are not disposed to
think that there is any thing so very unlike in our situation
and that of France and England, that the correct pathology
and treatment contained in the medical literature of those
countries, are not fully applicable here.   Let our remark be
confined to portions of each of these countries comprised be-
tween similar or nearly similar parallels of latitude, and few
will dissent from it.   We have, indeed, now and then, strange
diseases appearing amongst us.   The 'spotted fever' was
one.   But this is no more a disease of our climate, than
the 'sweating sickness' was of England, or the '*epide-
mic* cholera,' of India.   It may never appear again; and
certainly the accidents which produced it, its causes, let

them have been what they might, are not to be considered laws of situation or of climate, and which should operate permanently if at all. We are aware that the opposite doctrine has found powerful advocates amongst us; and one of them, and a very distinguished one too, went so far as to think, and to teach, that not only were our diseases unlike those of other countries, but that we had the means, in our native materia medica, for best treating our own diseases. We have made these few remarks here, not that they should serve as an introduction to an elaborate discussion of this subject at this time, but because we think there is some error in the doctrine, and that it may be made an occasion of much confusion. We have some further remarks on this subject in another place. It is quite an interesting subject; for it really involves the great question of that independence on external circumstances, even of extremes, which has been claimed for our species. Upon the doctrine of this independence, we feel connected with our whole species, through all ages. The beautiful, because true, histories of Hippocrates, are confirmed by the observations of the latest times. We claim as our own the vast body of medical literature, from its earliest dates; not because our art has always been as perfect as now, but because he who could observe accurately, and describe truly, observed and wrote for us, as well as for his own age, however near to, or however remote from us that may have been.

Following the preface, is a ' Historical Sketch of Medical Science, and the Sources and Means of Medical Instruction, in the United States.' This is quite an interesting introduction to the work. The author has been very industrious in collecting materials, and has stated the facts in a simple and useful manner. He shows us that we have not been unmindful of the means of good learning in our profession, and that much good has been done by the medical societies which have been from time to time formed amongst us. The following extract from this portion of the volume, and the only one we regret our limits will allow us to make, contains sentiments, about which there may be some difference of

opinion, but which seem to us to deserve very serious attention.

'The foregoing sentiments of Professor Sewall, as respects the multiplication of medical schools, and the increased facilities of acquiring professional knowledge, cannot but receive universal acquiescence, as a happy display of the prosperity of our country, and auspicious to our national character. But it may be queried whether we have by our numerous establishments advanced to such a state of perfectability as to decide whether our systems are to be considered as actual improvements on those of Europe, or is it problematical whether our twenty schools, and more than ninety Professors, act with more real efficiency than if the aggregate labours were concentrated into three or four institutions, advantageously located, with less than half the number of Professors, and may it not be inquired, whether our two thousand students quit the institutions possessed of all those scientific attainments, which, in European schools, are deemed indispensable? In some of our cities, instances have not been wanting to prove that prosperity and successful progress depend less upon the number of schools, than the harmoniously combined efforts of a single institution. Nor is it to be supposed that *all* our Professors and teachers can have experienced such advantages as to render them intrinsically qualified to discharge the duties which are imperiously incumbent upon them. Another point may also be questionable, whether a short session, as in some of our schools, and the daily lectures of six or seven Professors, is not calculated to confuse and overwhelm the mind of the student, without affording a fair opportunity to treasure up and retain those lessons which are intended for his instruction? It seems to be important that uniformity in discipline and bye-laws should prevail in all our medical schools, that students may find no temptation to resort to a particular institution, with the view of obtaining a doctorate in medicine on terms more favourable and convenient. Collision and rivalry ought on every occasion to be reprobated, by all who have at heart the true interest and honour of the profession. But so multiplied and copious are now the fountains of medical honours, that the streams flow into every one's soil, and the diploma waits to announce talent and acquirements with surprising facility.' pp. 62, 63.

Dr Gregory's Treatise on the Theory and Practice of Physic, is offered to the profession here by Professor Potter, of the University of Maryland, and by Dr S. Colhoun, of Philadelphia.

This American edition of the treatise is in two octavo volumes, of between five and six hundred pages each. The latest English edition is in one volume of between six and seven hundred. We refer to the second, that of 1825. This last, it is said in the title page, has been enlarged and amended by the author. It does not appear which text the American editors have used, and upon which their 'notes and additions' have been made. We use the term text,—for, from the increased bulk of the work, it would seem as much has been added, as formed the original treatise. It is farther 'adapted to the use of the United States.' We have already made a passing remark on this practice, and we shall not repeat it. We cannot, however, but add, that if great, or even but trifling differences, if at all general, exist between our diseases and those of the other countries before alluded to, would it not be best at once to set seriously about an American medicine? Why should we impose upon our students the double labour of learning and unlearning, if it be true, that the adaptations of works of foreign countries to our own meridian be really necessary? Carry this doctrine its whole length, and our materialists in intellectual philosophy, may find at last, that differences of place, and especially of institutions, make something of the mind here quite different from what it is elsewhere, and that the prevailing ethics and metaphysics must be modified for our use. It was once thought a cruel sarcasm of the French philosopher, that the human species degenerated here. But are we not in danger of pronouncing the same on ourselves, by some of the popular doctrines of the day?

It is false philosophy in medicine, that the treatment of disease proceeds merely or principally upon the resemblances, or rather the identities, of cases. It proceeds mainly on their differences; and he only has attained the highest rank in his profession, who has learnt to detect early and truly the mi-

nutest of these, and to modify the treatment accordingly.
The physician who undertakes to practice by cases merely,
by what he has read only, or even seen, and without regard
to all else that is most important in the instance before him,
the circumstances in which it differs from others, as well as
those in which it resembles them, will become the most use-
less as well as the most stupid of empirics.   All this applies
to the diseases of one's own country.   It applies as truly to
those of other countries compared to one's own.   If the
physicians then of America have new views to offer the pro-
fession, or can place old ones in a better light, let them do
it in works exclusively devoted to this purpose.   Let them
contribute truly to the science of their own country by
their own works, and let this trade of useless adaptation,
these interpolations of the pure pages of foreign writers,
cease to be one of the distinctions of our medical literature.

Following a short preface by Professor Potter, is a long
introductory discourse by Dr Colhoun.   A part of this dis-
course, it seems, was published some time since in a literary
magazine ; and there truly seems to be no very particular
reason for its re-publication.   We are unable to assign any
other cause for it, than that it has not been as much read
as the author thinks it deserves to be, and that it may stand
a better chance in a respectably sized volume, than in the
comparatively ephemeral periodical in which it originally ap-
peared.   Of the other, the first part of the discourse, we
can say but little more than that it contains nothing new, and
that it does not improve the old.   It is confused, though
laboured ; and we doubt much if the student of this element-
ary work, Dr Gregory's Treatise, will find his subsequent
labour lessened by the portion of it he may have devoted
to the Introductory Discourse.

But it is of the body of the work we have most to com-
plain.   Dr Gregory writes like a sensible man, who has seen
much, and has made a good use of what he has seen.   His
work is of a much more original cast than similar works com-
monly are, and it is this character which gives it much of
its interest.   It refers to the theory as well as to the practice

of physic. Those parts of it, which relate to diseases which he has not seen, or concerning which he trusts principally to others, are the least valuable part of his work. In such cases his opinions seem to us frequently incorrect. Thus he advocates the doctrine, that yellow fever is a contagious disease, which we believe to be wholly unfounded, and which we think he would not have adopted from an observation of the disease itself. Of the general character of the treatise, however, we are disposed to speak favourably. It is of the labours of the American editors we complain. These consist in foot notes, notes between paragraphs, nay, of notes in the very midst and body of sentences themselves. Nothing can exceed the utter confusion produced by this medley of three different writers on the same page and sentence, except the additional fact, that the interpolations themselves are only in part the editors' own matters, much of them being extracts from other works. Of these last, the American Medical Recorder, and Thomas' Practice, figure most; and of the last, it need hardly be said, it was in too many hands already, in the whole, to have needed this circulation in piecemeal. Thomas' Practice, and the like, are not authorities in medicine; and, we speak it seriously, it does not become men of name to bring them forward as such. They are, for the most part, miserable gleanings of a poor harvest,—imperfect in their abundance, and making confusion, where they would be helps. We do not want such books. If we are to pass through a nonage of medical science, as we have done in letters, let us at least do it with the fearlessness of youth. If we are to write badly in medicine, before we can write well, let us use our own minds in the labour, and, if you will, be independent on all foreign helps. We shall not grow by the labours of foreign compilers; nor shall we do so by being compilers, or mere annotators, ourselves.

But our objections are not merely made to the confused manner in which the notes and additions are distributed, for we have stronger ones to make to the notes themselves. These sometimes refer to the style, sometimes to the want

of meaning, and sometimes to errors of print,—punctuation, and orthography.   We shall give some instances as specimens.

'The *use* of *sodorifics* to determine gently to the surface should next be *used.*'   Vol. I. p. 235.

'It is necessary to ascertain with precision the exact *type* and *force* of the symptoms, and the remedies which *they* are likely to combat *it* with success.'—*Ib.*

'With respect to the effects of cold, it would be almost superfluous to comment on *it*.   It lessens the vital energies, by depriving the body, or some part of it, of its wonted heat, and is thus a sedative (when long enough continued, and of a temperature low enough) as decided in its effects as blood-letting or purging, and is as truly an evacuant, *as it robs the body of a different fluid.*' p. 264.

'Where inflammatory symptoms prevail, they are to be moderated; where the typhoid disposition is manifested, the *symptom* is to be supported.' p. 231.

'We sometimes find in irritable bodies, that the action of the heart overwhelms the muscular and nervous *persons*, and the action of the rete mucosum and cutis are very feeble.' p. 214.

'The eruptions by the too great use of stimulants, or warm clothing grow black and the lungs become highly inflamed.' p. 215.

'Free purging by equal parts of calomel and jalap ten grains of each.' p. 290.

'The tongue white and sometimes remarkably clean.'   *Ib.*

'The fauces being very dry, he picks the nose so as often to make it bleed.' p. 293.

'That affections of the abdominal viscera do *occasion* a consent *with* the brain, and thus *occasion* that action which terminates in the *secretion of hydrocephalus* we think we are justified in asserting from the appearances found by *digestion*, though we admit they are rare.' p. 297.

This last is a most remarkable sentence or note, and in itself furnishes specimens of all the faults of which we above gave an enumeration.

One of its errors finds a correction on a *fly leaf* at the end of the volume.   Having alluded to the *Errata*, we will

offer the reader a few of the fruits of the researches of the Editors :

Page 110, line 14 from bottom, for *agonies* read *agency.*

Same page, „ 8 „　　„　　for *more perfectly* read *never perfectly.*

Page 115　„ 4 „　　„　　for the *evacuation* read the *circulation.*

—— 263　„ 12 „　　„　　for *abused* read *absurd.*

—— 343　„ 7 „　　„　　for *acrid* read *aerial.*

—— 426, note, 2　　　　　for *intestinal* read *intercostal muscles.*

—— 437, line 8 „　　„　　for *lessen* read *discriminate between.*

There is really too little pleasure in this sort of labour, to continue it. We had marked a great deal more in this first volume, but the editors' own list of *errata* is a voluntary admission of the general inaccuracy and carelessness of their labours, to which we need not farther add. It is truly very difficult to account for this character of these volumes, the editorial department more especially, after reading the Introductory Discourse, which, though it contain nothing new, and is very dull, relates to a science, almost of all others, the best calculated to produce correct thought, and accurate expression. It is in a sense a metaphysical disquisition, and supposes the author to be somewhat versed in intellectual philosophy, and the true and accurate use of language. How a philosopher could have so far forgotten his vocation, as to have made, and owned, these notes, it is not in ' our philosophy' to comprehend.

These ' adapted' editions of foreign works have been spoken of as portions of our literature. But not only is the good learning of our own country not advanced by this species of editorship, but the foreign author is greatly abused. The original thinker pursues a certain or natural order of ratiocination ; and there is beauty, as well as nature, in an unbroken series of thought. But subject such a man's labours of thinking to the process which has been adopted in the case of Dr Gregory, and every thing like

connexion and order vanishes.   A profound statesman once
showed how absurd it was to adopt the *Mosaic* method in the
formation of a political cabinet ; but it is hardly less absurd in
the humbler art of book making.   It is not our intention, as
expressed in the outset, to attempt a critical examination of
these books.   They are singularly unsuitable for such an
attempt.   One note, however, contains matter that deserves
attention, and from it we make the following extract :—

  ' *Dysentery* has not one of the attributes of contagion.   It is an
affection of the mucous membrane of the lower intestines princi-
pally, from which an inflammatory excretion is discharged in the
mucosanguineous [muco-sanguineous] form.   If the contagious
property of the disease reside in that fluid, it would, when brought
into contact with the intestinal mucous membrane of a healthful
body, reproduce its own similitude.   *That such is not the result, we
know from our own experiments.   The discharge injected into the rec-
tum will not propagate the disease.—P.*'   pp. 266, 267.

We have not made this extract to remark on the incon-
clusiveness of the doctrine, which begins in a postulate
which no sound pathologist now admits, and ends with an
allusion to experiments wholly inadequate to settle the ques-
tion.   We have no motive to make the extract for this pur-
pose ; for the writer of the note, in another part of it, has
showed how dysentery may be contagious, although the *dis-
charges* do not contain the matter of the contagion.   He is
speaking of another disease.

  ' We think,' he says, ' there is no contagious cynanche, except
the *parotidœa* which arises from a specific contagion.' p. 266.

Now this cynanche, which is propagated by a *specific con-
tagion*, does not so propagate itself by any *visible, sensible
matter*, the direct and obvious product of the disease itself ;
and why then was it at all necessary to make experiments
respecting dysentery, since, by the author's own showing
and admission, it might be communicated in some other
way ? These experiments would not prove, surely, that the
disease was not contagious ; they would only show, that the
contagion was not in the discharges, and that the disease

could not be communicated by injecting these discharges into the rectum ? And who believes it could be ? For all that is said in this note, dysentery may be a contagious disease, and as much depend for its propagation on a specific contagion as the *cynanche* above named. Our motive for making the extract was found in that part of it, which we have taken the liberty to print in italics. We would ask the author upon whom these experiments were made ? Were they made upon the sick or upon the well ? We think a physician would hardly dare to make such experiments on individuals of either of these classes. What right, in morals or in medicine, has any physician to subject any individual, even though he or she might consent to it, to an experiment to settle a great question of pathology, when the very reason for doing so involves the fact, that severe, nay, fatal disease may be the result ? The uncertainty of the result is the danger, if not the crime ; for if there be no uncertainty, the experiment is mere folly. We have heard and read, indeed, and we believe both the report and the record, that physicians have swallowed the matter of black vomit, of small-pox, and have even inoculated themselves with the poison of syphilis. It is not for us to condemn this disgusting folly ; but let the *experimentum crucis* be always reserved for the profession ; and as this was, most probably, the case in the experiments referred to by the author of the note, our remarks will principally serve as a caution against extending them to others. It would be very easy to show, that these, and similar experiments, cannot settle the question which may have suggested them, and are mere gratuitous exhibitions of that morbid longing for strange but useless experiments, which we occasionally observe in the profession.

MISCELLANEOUS ARTICLES, ORIGINAL AND SELECTED.

Section I.—Original Papers.

1. *Miscellaneous Observations on Purgative Medicines, and on Costiveness.* Communicated for this Journal by John Ware, M.D.

Although there is perhaps no one point of practice, on which physicians of the present day are more generally agreed, than with regard to the great importance and utility of purgative medicines, yet it is probable that they do not in actual practice always recognize the extent to which they may be carried with advantage. There are few who do not, when they begin a course of treatment, secure a free evacuation of the alimentary canal ; and who do not, as they proceed, take care to keep up an open state of bowels,—that is, to procure every day, or at farthest every other day, one or two discharges by the exhibition of some aperient. This routine is undoubtedly sufficient in the large majority of the cases to which we are called ; cases, in which the powers of the system are, with a little assistance from art, adequate to the restoration of health ; cases, in which there is no reason for suspecting the presence of any unnatural quantity of fæces. But where an accumulation of fæces actually exists, it is by no means an easy matter to get the bowels thoroughly evacuated, nor can it be generally effected in a very short period. And yet this evacuation is always important, and often essentially necessary to the success of our treatment ; for, even where we do not conceive the disorder to have originated from the state of the bowels, still this state has an influence upon its course,—and is as important to be taken

into consideration in the treatment, as if it were an original element of the disease.

The objects which may be effected by purgatives are two ; 1, the evacuation of the contents of the intestines ; 2, the production and evacuation of fluids by secretion from the mucous surface of the intestines, and from the glands opening upon that surface. These objects are in their nature perfectly distinct ; and under different circumstances of disease, we have recourse to purging with each of these distinct purposes. But still, in actual practice, we cannot in any way effect one, independently of the other. Thus, when there is an accumulation of fæces, the most ready method of evacuating them, would be simply to excite the peristaltic motion of the intestines. But we have no article which will do this, without at the same time exciting the secretions, so that the cathartic effect will be partly owing to the action of the secreted fluids, which, in passing over and through the hardened masses which fill the large intestines, soften, dissolve and wash them away. On the other hand, when the principal object is to produce active secretion, the state of the bowels is seldom such, but that fæcal matter is mixed in and brought away with the secreted fluids.

It is principally the first object of purging, viz. the removal of accumulated fæces, to which my remarks are at present directed. And they are not made so much with the expectation of saying any thing new upon this subject, as with the desire of illustrating the importance of a perseverance in the attention paid to the bowels, particularly in chronic diseases, and in cases where there has been continued costiveness, or where we have reason to think that there is an accumulation of fæcal matter in the bowels ; and this, whether we believe the accumulation to have been the cause of the disease or not.

I can in no way so well illustrate the necessity which exists in such cases, for long continued, as well as active purging, as by the relation of a remarkable instance of the kind which occurred under my notice.

Mrs S. W. was delivered Nov. 23, 1824 ; no peculiar

symptoms attended her labour ; but immediately after getting
into bed, she was seized with a severe fit of shivering.   In
the evening she had another attack, accompanied by a spas-
modic twitching of the muscles of the arms and shoulders ;
to which, however, she had been frequently subject after
confinement, having borne eight or nine children before the
present, and having always had what is called a bad getting
up.   Her bowels were freely evacuated by castor oil, and
no particularly untoward symptoms occurred for several days.
Still her appetite was poor, she was weak, and suffered oc-
casionally from nausea.   Her pulse became quicker, and the
lochial discharge was less than usual.   She was able to sit
up every day, and once or twice appeared to feel a desire
for food.   Eleven days after her confinement, Dec. 4, she
took an emetic, which, although it operated well, gave no
relief to the nausea.   The same evening, she was seized
with pain in the left side, in the region usually affected in
pleurisy.   This pain, although not very severe at first, con-
tinued increasing until the next evening, when it became
excruciating.   Every inspiration was accompanied by a se-
vere groan, and there was apparently a constant belching
from the stomach.   The violence of this symptom was very
remarkable, but its exact nature it was difficult to discover.
It began with a sensation of oppression at the stomach, like
that produced by wind : an effort to throw up wind succeed-
ed,—and it was apparently brought up, in large quantities,
by a succession of efforts, for an hour together.   Whether
air was really evacuated at this time, or whether the sensa-
tion at the stomach produced an effort by which air was
swallowed and then thrown up again, I do not pretend to
determine.   I was inclined to the latter opinion, because
there was no such distension of the abdomen, as would ne-
cessarily have been produced by the quantity of flatus which
was apparently evacuated.   These fits of belching, lasting
from a few minutes to nearly an hour, continued to occur for
several days.

   For this violent pain in the side, she was bled, blistered
and purged.   There was no buff upon the blood drawn,

The next day the pain had removed higher up in the side, underneath the arm-pit ; it then successively seized upon the shoulder, the two thighs, and the two legs.   No sooner was it relieved in one part, than it made its appearance in another.   It was less completely removed in the lower limbs than elsewhere, and it was many months before their use was regained.   These attacks of pain continued for about a fort-night, and in the meantime the digestive organs had become extremely deranged.   The appetite was totally gone ; the stomach felt as if full of mucus, and as if vomiting were about to take place ; the belching still continued ; and she was occasionally seized with the spasmodic twitchings of the muscles before mentioned.   The pulse were rapid and small, varying from 120 to 140.   The tongue was not very much furred ; the countenance tolerable ; sleep indifferent.

This state continued for at least four weeks, during which period she literally took no nourishment, except a little tea, or some other unsubstantial drink.   She became very much emaciated ; was once delirious ; and at one time death seemed to be actually approaching.   At the beginning of that peculiar state of stomach which has been described, small doses of ipecacuanha, five grains, were administered once, twice or three times every day, according to circum-stances.   They produced a slight emetic operation at each dose ; a good deal of tough mucus was discharged, and they were productive of decided benefit.   They were recommend-ed by Dr Jackson, with whose counsel I was favoured in the management of this case.   With the exception of local ap-plications, such as blisters and fomentations, all other treat-ment was confined to regular purging.   Cathartics were ad-ministered as perseveringly as her strength would admit ; they were followed uniformly by copious discharges, con-taining fæces in a softened state, and also loaded with hard-ened scybala, or lumps of fæcal matter, in astonishing num-bers.   At the end of four weeks from the severe attack, and nearly six from her confinement, she began slowly to im-prove, and for several days drank freely of porter and water,

which was the first nourishment taken. She gained strength
upon this diet, but still continued to take aperient medicines,
and to bring away fæcal discharges. In fact, she passed con-
sistent figured stools, of a natural appearance, before taking
any considerable quantity of solid food. Convalescence went
on slowly, but surely. Her feet and ankles were swollen for
several months, and it was long before her legs regained their
ordinary strength.

The principal circumstances worthy of notice in this case,
were the immense accumulation of fæcal matter in the intes-
tines, the length of time during which it was necessary to
persevere in the use of purgatives in order to remove it, and
the power manifested by the system, of enduring these me-
dicines, although at the same time no nourishment was taken
into it. Certainly for more than a month, a cathartic was
given as often as every other day, frequently for several
days in succession, whilst nothing but the thinnest liquids
were taken into the stomach.

Whether the accumulation of fæces, in this instance, was
the only cause of the train of symptoms which occurred, is
doubtful. But it is certainly conceivable that the affection
upon which these symptoms depended, was at least fostered
and kept in activity by the state of the bowels, after it had
once been produced. The accumulation of fæces we know
to exist, in many cases, to a very great extent, in persons
who yet remain quite healthy, for a great length of time ;
and who yet, if they become sick from any other cause, seem
unquestionably to suffer from the state of their bowels, and
require to have them evacuated before they can recover.
From such cases we might infer, that even where costive-
ness does not produce disease, it is capable of preventing
diseases otherwise produced, from being cured by the efforts
of nature, or by other remedies.

The mucous surfaces have the power of accommodating them-
selves to the presence of foreign bodies, so that they cease to
irritate them, whilst in their natural state. It is from this
circumstance, that the bowels get accustomed to the presence
of indurated fæcal matter in the large intestines, so that it no

longer acts as a stimulus to produce its own evacuation.   By degrees the juices of the excrementitious matter become absorbed ; it hardens, and contracts very much in size ; it gets deposited out of the track of the discharges, in the cells of the colon, in the form of lumps, surrounded by the intestinal mucus, which still further contributes to protect the bowel from its stimulating quality, and to insure its retention.   There are many circumstances which illustrate this power in various parts to remain passive and quiet under the presence of substances whose natural tendency is to produce an irritation adequate to their own expulsion, like a foreign body.   Thus a ball, or a piece of glass, will remain imbedded for many years in the flesh——food will remain for several days in the stomach, and then be vomited unchanged——an extra-uterine fœtus will remain for a long time in the cavity of the abdomen without exciting irritation, until some accidental cause excites inflammation around it.   The same takes place with regard to tubercles in the lungs, tuberculated diseases generally, and sometimes with regard to wens.   They will remain for a long time in a quiescent state, the parts around them having become habituated to their presence, till at last some accidental cause brings on irritation and inflammation around them, and a process is set up to get rid of them.

This state of the bowels may take place gradually, whilst the subject of it is totally unconscious that every thing is not going on in a manner perfectly satisfactory.   He may have every day a discharge, and yet an accumulation of fæces may be actually taking place, or may actually exist to an injurious extent.   Although an evacuation may take place every day, yet the fæcal product of each day may not be wholly carried off.   A part of it may pass on through the large intestines, go out of the body and leave the remainder behind, to increase the accumulation which already, perhaps, exists.   Many patients and many physicians are entirely deceived by this circumstance ; and they conclude that the bowels are in a natural state, when in fact they are loaded with fæces, and are becoming more so every day.   To most patients a discharge is a discharge, be it great or small, hard

or soft, thick or thin; and if they have one every day, they are satisfied, and tell their physician that they have no tendency to costiveness, and have never suffered from it. It is difficult, particularly in some instances, even where a physician is in attendance, to ascertain very minutely the character and quantity of the stools. It is still more difficult to determine with any certainty, what has been the state of the bowels before attendance commenced.

The same thing may happen, even when medicine has been taken to keep up regular discharges. The medicine produces a watery secretion in the small intestines, which may pass entirely through the body of fæces accumulated in the large intestines, dissolving and carrying away some small portions of them, but leaving the main part behind.

A costive state of the bowels, and a consequent accumulation of fæces, is not necessarily inconsistent with a tolerable, or even a very good state of health. And some persons, probably, pass through life, without being sensible of any very considerable inconvenience from this source. This, however, does not often happen; and although an accumulation may not, perhaps, directly produce sickness in very many cases, yet whenever any other cause produces it, this state of the bowels is found a great impediment to recovery. For, although in the healthy state of the intestine, the presence of this foreign matter, for so it must be considered, may not be noticed, yet when the irritability of the intestine is increased or modified by disease, it becomes a source of serious irritation. It is easy to conceive how an accumulation, which is borne perfectly well, when the mucous surface is in its natural state, may, when it is in an unnatural state, produce great difficulty, increase and perpetuate disease, and require to be removed before health can be restored. This will be more particularly the case, where the digestive organs are the seat of derangement; but it may happen in almost any case, for there are few cases, in which the stomach and bowels remain through any disease in a natural state. A patient with dyspepsia, or with any chronic disease where the digestive organs are affected, feels the worse for any

omission of a daily discharge, although, when in health, he may perhaps have gone long without suffering. A person who has eaten to excess, if his bowels are free from accumulated faeces, may be relieved by a simple diarrhœa. If he has been very costive, this diarrhœa may pass into dysentery. For as soon as the natural state of the bowels has been changed, the fæces become sources of irritation; this irritation causes the dysentery, and consequently the fæces must be discharged before a cure can be effected. This is, probably, the state of things in those dysenteries accompanied with scybala. A person who has tubercles in the lungs, giving him commonly little or no trouble, may take a common cold which excites inflammation around them; and they may become a source of irritation, in the state of the lungs produced by the cold, although they were in a quiescent state before.

In very costive persons, whatever disturbs the bowels, either by interfering with their natural habits of action, or by producing a great mechanical impression upon them, is very likely to call out their latent irritability, and to bring on a state of them, in which the present fæces become sources of irritation, and require to be completely evacuated. This effect, in a mechanical way, is, I think, produced by the change which takes place in the situation of parts within the abdomen at parturition. We find patients, for instance, who have been very costive during pregnancy, and remain so up to the day of delivery, who become sick soon afterwards, and require a thorough course of evacuant medicine before they are restored to health. This often happens in a slight degree. The case just related is an example of the very severe effects which may be presumed to have arisen from this source; and cases are not uncommon, in which symptoms of a very serious character take place.

It is probably from the disturbance of this quiescent state of the fæcal matter in the bowels, that the operative medicines administered, even in persons who, from their habit of body, certainly require an evacuating treatment, often produce for several days great irritation, not only of the canal itself, but of the whole system. The patient in these cases,

is very ready to be persuaded, from this circumstance, that the treatment is not adapted to the complaint, and that he is injured rather than benefited by it. Indeed we are ourselves too easily diverted from the course which our judgment has originally dictated, by the same cause; although, if we persevere, it is seldom that we are finally disappointed in our expectations of advantage. It is certainly not at all uncommon, in chronic cases, accompanied or caused by costiveness, that an aggravation of the symptoms follows the first administration of cathartics; which, as has been observed, is probably to be attributed to the breaking up of the old habitual state of the bowels, and the production of a new state, in which the fæcal matter becomes a source of irritation, although it was not so before. It is remarked by Dr Smith, in his Essay on Typhous Fever, that a smart operative dose of medicine will seem suddenly to make a person very sick, who had been apparently but slightly indisposed before. I think every physician must have met with cases of this kind, in which the exhibition of medicine seems to develop, to bring out, as it were, the disease which had been perhaps hanging about the system for many days before, without making the patient very sick. This appears particularly to happen, with regard to fevers, as remarked by Dr Smith, although the observations made above, afford an explanation somewhat different from that which he seems inclined to adopt.

The more infirm and slender the health of a person is, then, the more necessary is it, that he should have a daily fæcal discharge. The reason being, that in his bowels the fæcal matter acts as an irritating or oppressing agent, whilst in a strong healthy man it is not felt. In the latter, the bowels can accommodate themselves to the presence of an unnatural quantity of fæces, just as the stomach can to the presence of an unnatural quantity of food. When a person becomes dyspeptic, one of the first symptoms he is led to observe, is, that he feels worse when he fails in the regular alvine evacuation; and hence he is often led to believe, that costiveness is originally the cause of his disease, when it

may be in fact a consequence; or the existence of the complaint may be the reason why he suffers from any obstruction in his bowels, and why he may even require to have them kept more thoroughly cleared, than is natural in the most healthy state, since even the natural quantity may not, under certain circumstances, be retained without irritation.

The reason that purgatives are of so much service in disease, separately from their power of producing secretion, even where there exists no extraordinary accumulation, is something of the same kind. In fever, for instance, the vital state of all the surfaces is altered, particularly that of the alimentary canal. Hence that fæcal matter, which was no cause of offence in the natural state of this membrane, becomes a cause of offence in this altered state; just as light does to the eye, sound to the ear, urine to the bladder and urethra, and the placenta to the uterus, when the surfaces of those organs have become changed from their natural state. Consequently the removal of it may either enable the system to cut short the disease at once, or at least to contend with it at greater advantage. Fevers, in which the patients are costive, generally do well, and are benefited by medicine; but where the irritability of the bowels is so great, as to cause an effort to clear them by a spontaneous diarrhœa from the first, the case is less promising, because it may be regarded as indicating either a severer degree of the disease, or a system unfavourably constituted for enduring it.

Those physicians who have *always* been accustomed to pursue the commonly approved method of treating fevers, are very unfavourably impressed with regard to the course which has been sometimes advocated, that of treating them almost wholly by stimulants, and permitting the bowels to remain very costive. We are apt to think such a practice must be very fatal in its results; and from the benefit which seems to attend the opposite system, one can hardly be persuaded to believe, that such a course can be safe. Still, however, it is probable that we over-rate its fatal tendency. The practice of administering opium and highly stimulating sub-

stances, and of keeping the system constantly under their influence, seems to have the effect to lessen its irritability, and thus prevent it from suffering from the presence of fæcal matter in the bowels. In this way, a patient may go through with a fever as safely, or possibly even more so, than if it were left to nature. This is a matter, however, which it is difficult to determine, and with regard to which there will be great difference of opinion.

Colic, we know, appears sometimes to come on spontaneously, or from the influence of cold; no indigestible substance having been taken into the stomach. In such cases, it is probable that the ordinary fæcal matter present in the bowels, acts upon them in their disordered state as a source of irritation, as a foreign substance, and excites the violent pain. At any rate, although a discharge of fæces is almost without exception followed by relief, yet bleeding or opium will also, in many instances, appear to cure the disease without any evacuation from the bowels; these remedies appear to operate by quelling the too great susceptibility of the gut to impression; and as a consequence the fæcal matter no longer operates as a foreign substance, but is quietly retained. I recollect a case of fever, in which all cathartics, even those of the mildest kind, produced such violent pain and distress in the bowels from their operation, that it seemed most safe to give up their use, suffer the bowels to remain costive, and trust the event to nature. In dysentery, some practitioners of great experience and sagacity, defend the practice of keeping the action of the canal entirely down by opium in large doses, and to use no other medicine, except an occasional mild laxative. All these circumstances tend to show, how much the effects produced by fæcal matter in the intestines depend upon the state of the intestines, whether existing naturally, or as induced by medicine; and that, because there is an accumulation of fæces, it is not, therefore, under *all* circumstances, necessary to proceed at once to their evacuation.

The tendency of all these facts is, on the one hand, to illustrate the necessity of caution, in undertaking the com-

plete evacuation of the bowels; and, on the other hand, of perseverance in the attempt, when it has once been begun from a thorough conviction of its propriety.   We are apt to suppose it much sooner, and more easily done, than is really found to be the case.   We are sometimes deceived, when we are purging a patient, whom we suppose to have accumulated fæces in his bowels, in supposing that, because we bring away large discharges, that we are therefore removing the accumulation very fast.   When the bowels are in the state that I have supposed them to be, in a costive person, it must be very difficult to excite them to throw off the indurated fæces.   This could only be done by producing a strong muscular action in those parts of the intestines where the accumulation is lodged, viz. in the large intestines.   But, the very accumulation prevents medicine taken into the stomach from coming in contact with those parts, and producing action there.   Its operation, therefore, is expended principally upon the small intestines, where a copious liquid secretion takes place, which passes down through the large intestines, loosens and dissolves portions of the fæces collected there, and discharges them in the form of lumps, floating in a fluid, but does not bring them away in mass.   This mode of evacuating the intestinal canal, when it has been much constipated, is a very gradual business, although, to appearance, great quantities are discharged.   Every man, who is in the habit of inspecting the evacuations, must have often remarked that, after he has been purging a patient through a fit of sickness, producing every day numerous and copious fæcal discharges, a number of good-looking, substantial, figured stools, will take place as soon as convalescence is established, without medicine, and before the patient has taken any noticeable quantity of food.

We seem to stand in need of some medicines, or some agents, which shall have the power of exciting muscular action in the large intestines, without direct application to their mucous surface.   These intestines are intended to act as a depositary of the fæces for a certain length of time, and by a defect in their action they retain them, and they thus become lodged in the cells of the colon.   To dislodge them

from these cells requires the action of the circular fibres of the gut to throw them into the centre, where they may be taken up by the common peristaltic motion, and carried downward. Now, this downward motion may be kept up, whilst the other does not exist, since they depend upon separate sets of muscular fibres; and in this way the secretions produced above may be carried through, whilst very small quantities of fæces are evacuated.

What we need then, is, some medicine or agent which shall obviate the difficulty, by exciting this double action in the large intestines. Cold will sometimes do it. Wet feet, or exposure to a cold and damp atmosphere, as in a cellar or in a room without a fire in some kinds of weather, produces in many persons pains in the bowels and fæcal evacuations. Dashing cold water upon the bowels and thighs has been advised for this purpose. Emetics are strongly recommended by Dr Hosack for obstinate costiveness, and, probably, every physician has seen copious fæcal evacuations follow their use; and it is very likely that the mechanical disturbance of violent vomiting, as well as some sympathetic influence upon the large intestines, may dispose the fæces to be more readily evacuated. The relative value of the different common cathartics is well known to physicians; little, therefore, need be said of them. Of one article, however, which has lately been getting into use, and which I have very frequently administered, I would remark that it appears to possess more power of the kind so desirable, than perhaps any other cathartic. I mean the croton oil. Its most remarkable quality is, that of producing the discharge of fæces, which it does very abundantly, as in the following case, although its effects are not always so decided. A patient, who had suffered very much from headach, dizziness, &c. accompanied by costiveness, had been taking cathartic medicines, such as castor oil, pil. cochiæ, calomel and jalap, for several days, with tolerable operations, but without relief. One drop of the croton oil was administered, in half an ounce of syrup of Tolu balsam. It produced most violent gripings in the bowels, and brought away, within a few

hours, the most copious fæcal stools I ever saw, which were nearly solid.   Her symptoms were immediately and entirely relieved.

When the sole object is the discharge of fæces without secretion, the frequent administration of small doses of the resinous cathartics has seemed to have a more satisfactory operation than the same, or any medicines, in larger quantities.   When given in this way, they do not act so suddenly and so violently, as to be carried off in the copious secretions which they produce.   They, probably, pass slowly through the large intestines, dissolved in the fluids they have caused to be poured out in their passage; they thus have time, in a manner, to soak into, to pervade the fæcal mass, and to impart to it a stimulating quality, which excites the bowels to action, and thus produces its evacuation.

Nothing can be more important to a physician, where he is purging a patient, particularly with a view to the evacuation of accumulated fæces, than for him to inspect all the evacuations.   It is impossible that he should otherwise be able to judge how much impression he is actually making upon the bowels ; how far the effect of his medicine is confined to the proper object he has in view, and how much it expends itself in the production of secretion merely.   The accounts given by patients themselves, or by their nurses, are worth little or nothing.   They do not communicate the facts themselves, but only their own results, founded upon a very imperfect observation of the facts.   One is sometimes perfectly amazed at the difference between what he sees, and what he expected to have seen, from the description given of the quantity, consistence and colour of the discharges from the bowels.

A very difficult and delicate matter to manage, is that habitual costiveness, which seems to require a remedy, not because it has caused, or is connected with, any settled or important disease, which requires purging to remove it, but because the want of sufficient evacuation keeps the whole system in a disturbed and irritable state.   It is true, so many persons pass through life in this confined state of how-

els, and yet enjoy very tolerable health, that it might seem to admit of some doubt whether it be invariably best to attempt the amendment of the habit by any very active measures. Yet there are, on the other hand, so many who do suffer from it ; so many hypochondriacs, or habitual invalids, whose ailments have either been originally produced, or are at least constantly aggravated, by this cause, that it becomes a matter of some importance to devise means of remedy.

The causes of costiveness are no doubt different in different individuals, but the actual and immediate state of the bowels themselves is probably in most cases nearly alike. The difficulty appears to consist in the inirritable state of the mucous membrane, in contact with which the fæces lie : or of the muscular coat, which corresponds to it on its external surface ; or it may arise from the want of the natural stimulating qualities in the fæcal matter, caused by a deficiency of bile, or of some of the other secretions of the canal. The objects to be held in view, then, in remedying costiveness, will be either one or both of the following, according to circumstances. First, to restore to the mucous membrane, and the muscular coat of the intestines, their natural sensibility to the stimulus of fæcal matter ; or, second, to render the contents of the canal more stimulating in themselves, and thus to enable them to excite in the bowels a degree of action sufficient for their expulsion.

There is no certain way of effecting the first object, except by such general remedies as affect the whole system, and amend the state of all the functions,—such as exercise, proper diet, &c. It is possible that frictions over the abdomen, continued for a long time, at the same time kneading the bowels with as much force as they can bear, might have some effect. Cold water applied to the abdomen has also been recommended. The second object may be effected by a diet consisting of substances of an aperient nature, where the stomach will bear them ; or by the exhibition of purgative medicines. From the favourable change which has been sometimes observed to take place in the bowels of costive persons

after long fits of sickness, and which a proper degree of care might make permanent, the following plan seems very likely, if thoroughly persisted in, to break up a sluggish state of the bowels, and restore them to a natural activity.

Where there has been a confirmed costiveness, it would seem best to begin with thoroughly evacuating the bowels by medicine, in order to put them into a completely new state, by breaking up all the old habits of action, all the associations and sympathies of the system, which have been predicated, if we may so speak, upon this unnatural but habitual state of the organs of digestion. The favourable change sometimes brought about by a fit of sickness has been alluded to. We may perhaps, to a certain extent, imitate the process, by a course of medicines which shall carry away every particle of the accumulated fæces, and thus put the bowels into a new state—fit them, as it were, to begin anew. This complete evacuation, as has been already remarked, is not a perfectly easy matter. It is very difficult to feel sure that it is effected. It cannot be done by one or two smart cathartics, as some persons talk of evacuating the bowels, but rather by a succession of more moderate ones, which will bring away fæces, and not expend themselves in producing secretion.

This being done, let the patient in the next place accustom himself, *so far as his stomach will bear it*, to such articles of diet as furnish a large proportion of excrementitious matter, and that also which is of a stimulating quality to the bowels. Such are vegetables, fruit, rye bread and pudding. *With* every meal, let a single pill of 2 or 3 grains be taken, containing several of the principal powerful cathartics in very minute quantities,—so mixed, that each pill shall contain a portion of each of them. The size of the pills to be increased if no effect be produced, or diminished if too much. The object of this method of giving medicine with the food, is to impart to the mass of the fæces, as they are formed, a stimulating power adequate to their own evacuation, instead of administering the same articles separately as purges, which often fails of producing the precise effect wanted. At the same time, let the patient, several times a-day, whenever, in fact, there is any

thing like an inclination for a stool, solicit nature to a dis-
charge, and make all such efforts, by bearing down and strain-
ing, as are naturally made on such occasions.   Let him also,
at one or more particular periods, make a voluntary effort
on the chair to procure a motion, if he have no inclination ;
for a continued voluntary effort, even a slight one, particu-
larly when combined with the associated circumstances of
time, place and opportunity, has no inconsiderable effect in
bringing on a regular action in the bowels.

At first it is sufficient to make sure of adequate evacua-
tion at any time ; but when sure of this, it becomes impor-
tant to have it take place at particular periods, because suc-
cess must finally depend upon the formation of a regular
habit.   I am inclined to think, that a person disposed to be
costive can more easily form and preserve the habit of hav-
ing two discharges in the twenty-four hours than one, al-
though a single one is generally esteemed sufficient.   This I
have certainly found to be the case in one person, who, so
long as he obeyed every indication of motion in his bowels,
had at least two natural discharges every day ; but, as soon
as he resisted the disposition, in order to confine himself to
a single discharge, became costive again, and his habit was
broken up.   The reason of which may probably be, that
when the fæcal matter remains long in the bowels, its liquid
parts are absorbed, and it consequently becomes dryer, hard-
er, and less stimulating.   This, indeed, may be one great
difficulty with costive people, that there is a peculiar dispo-
sition in their bowels to absorb the liquid parts of the fæces
unnaturally soon, so that the mass becomes very speedily
dry and hard.   It should be a rule, then, with the patient,
having fixed upon certain convenient hours for this occasion,
morning and evening for instance, to make invariably a regu-
lar effort at those hours, whether he have a disposition or
not, and to continue it for some time.   At the same time,
however, observing never to resist any disposition to evacu-
ate at other parts of the day, till his habit is securely fixed.

The use of the pills above mentioned, may be gradually
relinquished as the habit is formed.

There is one sort of obstruction in the bowels, which oc-
curs in the course of diseases, which is always a perplexing
and troublesome, and often a dangerous symptom. It seems
rather to depend upon an unnatural state of action in some
part of the alimentary canal, than upon any accumulation of
fæcal or secreted matter.   And a restoration of the natural
action, and of discharges from them, are measures necessary
to relief.   In this state of obstruction, there seems to be some
insurmountable opposition to the operation of medicine.
Large doses of the most powerful cathartics are given with-
out any discharge at all, or else with very trifling discharges.
Yet often, as soon as death takes place, the difficulty seems
to be removed, and the patient purges violently.

A case occurred to me lately which appeared to illustrate
at least one of the states of the bowels, under which these
symptoms present themselves.   The patient was a little girl
of two years old, who had not been well for some days, and
on a Friday, was suffered to eat some lobster. It caused
distress and vomiting ; on Saturday the parents gave an eme-
tic, and on Sunday she seemed to be relieved. On Monday,
however, she became very sick again, and I was then first
called to her.   Her countenance expressed great distress,
her respiration was laborious, her skin hot, and pulse very
rapid.   The nature of her distress, and the kind of respira-
tion, as well as a fullness, hardness and tenderness of the
abdomen, pointed to the bowels as the seat of difficulty.
For two days persevering attempts were made, by the most
efficient cathartics, assisted by injections, to procure evacua-
tions from the bowels, but without success ; small mucous
discharges only were obtained, and these with great pain.
Blisters and fomentations gave only temporary relief.   In a
little more than forty-eight hours, she died.

On dissection, the bowels were not found, properly speak-
ing, inflamed,—but in many parts bore marks of very great
irritation.   The small intestines, and the upper part of the
larger, were perfectly free and open, and full of such secre-
tions as usually form the bulk of the discharges from the
bowels when physic has been taken.   But the lower part of

the rectum, from the anus upwards, to the extent of six or eight inches, was so contracted as to have lost entirely the appearance of a canal, and looked like an impervious cord. In this case there was probably some permanent spasmodic affection of the rectum ; and could this have been removed, the patient might have been saved. It is possible, could the nature of the obstruction have been distinguished, that a milder practice would have been more successful. Opiates might have relaxed the stricture which resisted cathartics. And it might perhaps have been worth-while, as glysters were with very great difficulty thrown up, and never retained, to have introduced a bougie of sufficient size to dilate the intestine, and to have kept it there till the tendency to spasm in the muscular fibres had been overcome by thus keeping them extended.

Boston, Dec., 1826.

II.   *Case of Hæmatemesis.*   Communicated for this Journal by PELEG CLARKE, M.D.

PROFUSE hemorrhages are at all times alarming, and often perplexing, especially when the seat and cause of them are not obvious.   Hæmatemesis, I believe, is a disease of infrequent occurrence ;   at least I have found it so,—and its pathology seems to be involved in a good deal of obscurity : the causes usually assigned for it by writers, are not very satisfactory, as the effect so very rarely follows their application.   The ingenious Dr Darwin* describes what he calls a hemorrhagy of the liver, and I believe this organ is oftener implicated in this disease, than is generally imagined.   But I shall not attempt to explain the phenomena of this disease, nor recommend any particular mode of treating it ; my only object is to call the attention of pathologists to its investigation, and I should think the subject sufficiently interesting for a prize dissertation.

I am aware that the treatment in the following case, was

* Zoonomia, 3d American Edit. vol. ii. p. 56.

a departure from that usually recommended,—but it was such as the indications seemed to warrant, viz. 1st, to suppress the hemorrhage ; 2d, to restore, improve or alter the secretions in the digestive organs, particularly the liver ; it shows too, that the acetate of lead may be taken into the stomach in considerable quantity, without producing any deleterious effect. I will likewise observe that I had not, previous to the treatment of this case, *seen* the cases, published in Johnson's Medico-Chir. Review, (Vol. ii. New Series, p. 481, New-York,) where several cases are detailed as being successfully treated with emetics.   Would emetics have fulfilled the indications in the following case ?

E. A., aged 30, muscular, and of sanguine temperament, addicted to the intemperate use of ardent spirit, had been indisposed for some time,—complained of pain, weakness, faintness, and a peculiar sinking sensation at the epigastrium, variable appetite, and other symptoms of indigestion ; but for the most of the time had followed his business, (machinist,) up to the 18th June, 1826, when, after fasting all day, and drinking freely of spirits, he ate a large quantity of shell-fish, (*quohogs*,) returned to his lodgings, and passed a distressed and sleepless night ; was attacked in the morning of the 19th with vomiting, by which he brought up a quantity of the shell-fish with some blood,—he took a dose of salts, which nauseated him and brought up more blood ; there were frequent evacuations from the bowels, of an inky fluid, destitute of fæces or odour.   I saw him about 10 o'clock A.M., June 19 ; he then complained of sickness at the stomach, with a sense of choking or rising in his throat,—there was an universal tremour, pulse regular, skin cool and clammy.   I gave him a dose of tinct. opii and ether, intending to follow it with a mercurial cath.   While I was preparing the cath., he vomited,—I should judge, two quarts of blood, most of which was coagulated ; he was pale and faint, but felt much relieved.   Instead of the cath., I gave him 4 gr. acetate of lead, with 30 gtt. tinct. opii ; the tremour and choking abated ; he was thirsty, and took a small quan-

tity of cold water frequently.   Prescribed nitrate of potass,
cal. and rhei a͞a 8 gr. repeated every 4 hours.   6 o'clock
P.M. vomited a pint and a half of blood ; took 4 gr. acetate
in powder; other medicine continued.   7 o'clock, vomited
1 pint more ; frequent dejections from the bowels, of the ap-
pearance above described.   June 20, 7 A.M. 1 pint more of
blood discharged ;   8 o'clock, 1-2 pint do. ; he complained
now of nothing but weakness; pulse regular ; medicine conti-
nued.   10 o'clock, Dr Knight in consultation ; a blister ap-
plied to the epigastrium ; the mercurial powders followed by
Epsom salts, and the effervescing mixture ; acetate of lead
omitted ; he remained comfortable till 1 o'clock P.M. ; Dr S.
A. Arnold, of Providence, in consultation ; vomited a pint
of blood in presence of Dr Arnold ; the evacuations from
the bowels appeared to be mixed with blood and mucus ; de-
bility, with spasmodic affections of the muscles of the extre-
mities.   Prescribed in consultation a powder containing 1 gr.
opii 2 gr. acetate and 8 cal. repeated once in 4 hours, alter-
nated with 25 gtt. aqua ammonia in valerian and hop tea.
21st, 6 A.M. has not vomited ; the lead left out, and 5 gr.
rhei added to each powder ; delirious at night.   22d, more
deranged, pulse quickened ; medicine continued.   23d, deli-
rium continues ; powders changed for an active cath. com-
posed of jalap, gamboge, aloes and cal. in ordinary doses
once in 6 hours,—20 gtt. tinct. digt. once in 6 hours added
to his other medicine, with an allowance of 1-2 pint spirit
in divided doses in the 24 hours, with tinct. opii and mentha ;
some appearance of bile in the dejections to-day ; force used
to restrain the patient ; he got out and travelled 1-4 mile in
the rain, no sleep in 72 hours, troublesome night.   24th,
more calm, slept some to-day ; his stools improve ; complains
of soreness of the mouth ; the cal. omitted to-night ; he took
a tea-spoon full of tinct. digt. by mistake, no bad effect ; a
plentiful discharge of urine.   25th, still improving ; mouth
sore, and some spitting ; takes Epsom salts ; continues the
valerian and hop tea, with the ammonia, tinct. opii and men-
tha occasionally.   26th, evacuations from the bowels of more

consistence, but still very dark coloured ; takes infusion of gentian and senna.   27th, return of appetite, and every way improving.   28th, convalescent.   He resumed his business in a few weeks from this time, with his health, as he said, perfectly restored.

Cranston, Oct. 18, 1826.

Section II.——Selections, with Remarks.

I. *Strangulated Hernia.*

Mr E. Geoghegan in a letter to Mr Abernethy on this disease, offers some views on its pathology and treatment, which, if not new, deserve to be remembered.   'I consider strangulation to consist in inflammation of the gut, closing it up in the aperture, and confining the highly pungent contents, which become a cause of increased distress ; the usual taxis contuses the parts against the stiff tendons, so as to favour derangement of structure, hence leading to permanent obliteration of the calibre by agglutination or ulceration, should the inflammation continue long.   Dr Bishop treated a strangulated hernia in the usual way for three days ; on the fourth he operated, and reduced the intestine : after twenty hours' violent pain, the termination was fatal.   Examination of the body discovered the portion strangulated completely impervious one inch and a half in length.   Surprised at this, as was Dr Arnold, who assisted him, he related the case to Sir A. Cooper, to whom it was equally novel,—strong evidence of its not having been noticed in British surgery, and ample excuse for me, were I to grant that I required any, for not having adduced *post mortem* facts to confirm my statements, as remarked by Dr B. and the able editor of the Medico-Chirurgical Review.   I never attempt to reduce the hernia in the usual way, therefore such an instance could not have happened under my care ; my practice is designed to prevent, and to ascertain imperviousness, aware that the replacement in this state premises fatality.   My statement was an induction from facts, and

from the phenomena of the disease, as I had observed them, and the records of practice exhibited them.'

He reprobates the *taxis* in the first instance strongly, and recommends the following measures :—' My advice is, to apply cold for an hour before touching the part; it controls inflammatory action,—abates sensibility evidently,—and, I think, chills the intestine all through,—also condenses the warm air, so as to occupy less space, and thus is moved through the gut separating the villous coat; the ascertained effects of cold, and the hissing noise perceived on removal of the tumefactions, warrant this rationale; it goes up *per saltum*, not *paulatim*, as the fingers are erroneously employed to accomplish.'

' P.S.—Let an intestine be doubled, and passed through a hole in stiff pasteboard; inflate it; pass a cord around it in the opening; then try pressing up from the bottom with one hand, and work with the points of the fingers of the other, at the upper part, to get a bit inside the opening; and you will see the contents accumulate above the gut, overlapping the ring, the fingers effecting nothing but bruises; and you will instantly perceive that the inflated state must be removed; that the gut is active, pressing against the pasteboard, because the former is too large, and made still larger by the hand.'—*London Med. Repos. and Review.*

II. *Report on the Prize-Question concerning the Yellow Fever, proposed by the Duke of Oldenburg.* Communicated to the Editor by G. von dem Busch, M.D. of Bremen.

' The Duke of Oldenburg offered, in November 1822, a prize of 200 Dutch ducats, for the best treatise upon several questions respecting the nature and contagiousness of the yellow fever.

' The programme published upon the subject was distributed with great care to all parts of the civilized world, and the questions were circulated in a great number of periodical writings, and were communicated also to the physicians of the United States, by the valuable American Medical Recorder. The critical judgment upon the several treatises, that might claim the prize, had been committed to the faculty of Berlin. On the 1st October 1824, which was the last term of delivery, eighteen tracts had been sent in, six of which were in German, four in French, seven in English, and

one in the Latin tongue. This last came from Cadiz, and three of
the English from the United States.

All of them were returned to Oldenburg by the faculty of Ber-
lin, on the 3d of March 1826. The prize had been decreed to
one of the German tracts, the motto of which was, ' Opinionum·
commenta delet dies, naturæ judicia confirmat.' Upon opening the
sealed note, the author was found to be the *Dr Charles Christian
Matthaei,* of Verden, near Bremen, court physician to the King of
Hanover.

The report of the judgment passed by the faculty on this trea-
tise was as follows :—

' The author, after having examined the several alleged causes
of the disease, showed them to be unsatisfactory, and that there
must be some others, as yet unknown ; and after having enumerat-
ed, and carefully weighed all the reasons hitherto promulgated,
for and against the contagiousness of the disease, he at last decided
for the contagious nature of the yellow fever. The conditional causes
of the rise and propagation of the disorder, considered with the
utmost exactness and accuracy ; and tables containing the symp-
toms, the progress, and the results of anatomical dissections, drawn
up with the utmost care and exactness, tend to prove the nature
and identity of the disease, between the tropics, in the north of
America, and the south of Europe.

' The opinion of the author is, that the yellow fever appears as
a disease, *sui generis* endemical only in low countries of the sea
coast, but, in a due concurrence of circumstances, also sporadic in
other places. The disease, he says, never made its appearance
beyond the 48° north latitude, and a temperature as high as 72°
F. is necessary for its production and propagation. He believes
that there is indeed a possibility of its being propagated by means
of contagion in the sea-ports of North Germany, and by reasons of
analogy, answers the question, whether any other malignant dis-
eases can be generated by it, in the affirmative. The measures
he proposes, to prevent the propagation of the contagious virus,
are such as are generally made use of.

' As an appendix to the treatise, he gives the most important
quotations from all the authors who have written upon the subject;
an alphabetical catalogue of all the writings to this purpose; an
alphabetical enumeration of all the epidemics of the yellow fever;

and another of all the places at which it has either prevailed, or ever been perceived; and lastly, geographical maps, giving an easy view of the propagation of the epidemics in the two hemispheres.

'A complete literature, a careful and ingenious comparison of facts, and a critical examination of them, give so distinguished a value to this treatise, that the faculty did not hesitate to adjudge the prize to its author.'

The names of the professors of the faculty of Berlin, who examined the treatises, and adjudged the prize, are—*Link, Berends, Graefe, Knappe, Hufeland, Rudolphi, Horn, Henkel, Siebold, Wolfart.—Edin. Med. and Surg. Journal.*

III. *On the Preparation and employment of the Chloride of Lime, for destroying fetid and infectious effluvia,* [*Kopp's Reise in Deutschland und Frankreich,* p. 198.]

Several years have elapsed since M. Labarraque, a Pharmacien of Paris, discovered that the chloride of lime, now generally employed instead of chlorine for bleaching, likewise possesses the power belonging to that gas of destroying putrescent effluvia. It was afterwards remarked that it has also general antiseptic properties, and it has farther been, with much reason, presumed to possess the power of destroying the effluvia of infectious disorders. Dr Kopp of Hanau, in a late visit to France, had an opportunity of witnessing its employment at the *Morgue* of Paris, and bears unqualified testimony to its rapid and perfect operation. As we have not hitherto taken any notice of this important discovery, we shall endeavour to remedy the omission, by giving an abstract of a report which was lately delivered to the prefecture of Paris by Professor Marc, as president of a committee of the Board of Health, and which has been translated at length in the work of Dr Kopp. The report, we may add, has been adopted by the French government, who have advised the use of the remedy in all hospitals and lazarettos.

The first experiments were made at the *Morgue,* on a dead body far gone in putrefaction. Half a pound of chloride of lime being dissolved in about 20 pounds of water, the solution was poured over the body, and the board on which it rested. In one minute the smell was almost destroyed, and it disappeared entirely when

the washing was repeated. The superintendant of the institution has uniformly remarked, that bodies washed in this manner remain fresh much longer than others. The next experiment was made with the public urine-tubs of the Palais-Royal, the disgusting fumes of which render this almost an *experimentum crucis.* About a quart of the solution was mixed with the contents of one of them, and the urinous odour was completely destroyed in a single minute. Similar experiments were made, with the same results, in the necessaries of the *Café des Variétés,* and the *Passage du Gymnase,*—places of which we cannot give a better idea, than by mentioning that no Englishman ever went to any of them twice. After relating these experiments, the reporter proceeds to mention the various establishments where stores of it should be kept under the direction of the prefecture, and adds some instructions regarding the method of employing it. The powder should be dissolved in 40 or 45 parts of water, and when it is used for removing the putrid odour of dead bodies, it should be poured over them twice or thrice a-day, according to the temperature of the weather, and the bodies should be kept over night in coarse linen wrappers steeped in solution. In private families, when a dead body has begun to putrefy before burial, this plan will be found exceedingly useful for preventing the impregnation of the furniture with the putrid effluvia. It has been likewise found to be of signal advantage for facilitating the medico-legal examination of putrid bodies. A quantity of the solution is to be kept at hand, and poured over the various parts as they are successively exposed.

The chloride which is most easily procured in this country, is the common bleaching powder, originally prepared by Mr Tennant of Glasgow, and now made by most chemical manufacturers. That made by Mr Tennant is charged so completely with chlorine as to form a bichloride. As this preparation may not be easily got in some parts of the country, we subjoin the following formulas published lately by Labarraque in the *Journal de Chimie Medicale.* For preparing the dry chloride, he recommends that a twentieth part of common salt be mixed with slaked lime. This mixture being put in deep earthen-ware pots, and the tube of the retort plunged to the bottom, the chlorine is to be disengaged from a mixture of 576 parts of muriate of soda, and 448 parts of oxide of manganese, by means of sulphuric acid diluted with three-fourths

its weight of water. The acid should be added gradually by means
of an S tube. A solution may likewise be made at once in the fol-
lowing manner. A mixture of three parts of slaked lime, and one
part of muriate of soda is to be diffused in a proper bottle, in
twenty times its weight, or eighty parts of water; and while the
gas is passing through it, the mass should be occasionally stirred
with a wooden agitator. The solution thus procured may be
diluted with its weight of water before being used.—*Ib.*

IV. *On the direct application of Galvanism to the nerves of
the orbit, as a remedy for Amaurosis.* By M. MAGENDIE.
(*Journal de Physiologie, Avril* 1826.)

IF Magendie is correct in the opinion he has deduced from his
experiments on the fifth cerebral nerve,—that its integrity is ne-
cessary to vision,—it follows, that amaurosis may be sometimes
owing to a disease in that nerve, as well as to an affection of the
optic nerve in other cases. He has therefore conceived it possible,
that some kinds of amaurosis may be successfully treated by apply-
ing stimuli to those branches of the fifth nerve, which are within
the reach of the surgeon, and in the neighbourhood of the orbit.
The stimulus which struck him as the best to employ for deter-
mining the justice of this idea, was acupuncturation, and galvanism
applied through means of the needle. Having first ascertained, by
experiment on animals, that needles may be thrust into the sub-
stance of nerves without injury, he proceeded to try in the
first place the effect of simple acupuncturation. In a young man
affected by amaurosis, with insensible pupil, he introduced a steel
needle into the frontal nerve where it emerges from the supra-
orbitary hole. The patient immediately felt the same sensation
as when the cubital nerve is struck at the elbow, namely, a prick-
ling at all the extremities of the nerves. The operation was re-
peated on the infra-orbitary nerve with the same result. After-
wards he succeeded in puncturing in the same manner the lacry-
mal twig of the fifth nerve; and immediately the patient expe-
rienced a peculiar sensation in the orbit, and the tears flowed pro-
fusely. At each puncture of these nerves the iris contracted, but
the amaurosis was not diminished. Magendie then proceeded to
combine with the puncturation the more powerful stimulus of gal-
vanism, by thrusting one needle into the frontal, and another into

the infra-orbitary nerve, and connected one with each end of a voltaic pile of twelve pairs of six-inch plates.   Each time the electric circle was established, the patient felt a painful commotion in the course of the nerves and in the bottom of the orbit, while at the same time the pupil contracted, and the light became more distinct.   This treatment being continued fifteen days, the pupil returned to its original dimensions, and the amaurotic state of the eye was evidently diminished; but Magendie was unable to observe the future progress of the case, as the patient left Paris.   Since then he has applied the same treatment to several cases of incomplete amaurosis, and with almost uniform advantage.   In one instance of amaurosis of the external half of the retina, accompanied with palsy of the upper eye-lid, and *rectus internus* and *superior* muscles of the eye, a complete cure was effected in three months. He has not hitherto had an opportunity of trying a case of perfect amaurosis.   Meanwhile he assures us, that the pricking of the nerves is never followed by the slightest inconvenience, which can form an objection to the experiment; and, therefore, it is highly expedient that this new remedy for so obstinate and unfortunate a malady be subjected to immediate trial by others.—*Ib.*

V. *On the cause of the Yellow Colour of the Skin and Fluids in the Icterus of new-born children.   By M. Las-saigne.   (Journal de Chimie Medicale, Juin 1826.)*

M. Lassaigne has very properly remarked, that the opinion entertained of the cause of the colour of the skin in the icterus of new-born children is founded rather on analogy than experiment. Having resolved to subject it to the test of experiment, he proceeded to analyze the subcutaneous cellular tissue, and the various fluids which are tinged in this disease, with the view of detecting in them the principles of the bile.   He has in consequence discovered that the colour is caused by a yellow matter which possesses some, but not all of the properties of the colouring matter of the bile.   It resembles the yellow matter of the bile in forming a green solution with the caustic alkalis, in being precipitated dark green from that solution by the acids, and in being turned to greenish, then to blue, and finally to violet, by nitric acid; but it differs in being soluble in alcohol.   These points of resemblance he considers to be insufficient for warranting the conclusion that

they are the same matter; and as he was never able to detect any of the other principles of the bile either in the subcutaneous cellular tissue, or in the yellow serum extravasated into the cavities, or in the blood, he infers that the cause of the colour is not absorption of the bile.—*Ib.*

VI. *On Spontaneous Erosion of the Stomach, its symptoms and treatment.*   By Dr PITSCHAFT of Carlsruhe.   (*Rust's Magazin für die gesammte Heilkunde.   2 Heft* 1826.)

THAT species of erosion of the stomach which Mr John Hunter ascribed to the action of the gastric juice after death, and which the Parisian pathologists believe to be the results of a vital morbid process, has been lately described with minuteness by various physicians as occurring in infants.   Among the authors who have written on the subject may be mentioned Jaeger of Stuttgard, Cruveilhier of Paris, and Dr Gairdner of this city.   Dr Pitschaaft has endeavoured to supply a great deficiency in our present knowledge of the disease, by describing the symptoms through means of which it may be recognised during life.   It occurs, he says, only among the children of unhealthy mothers, or those who are too soon and too much fed without milk, and whose mind is precociously developed.   The first symptoms are paleness of the countenance, coldness of the skin, with occasional flushes of heat, dulness, and flaccidity of the muscles.   Loss of appetite succeeds, with excessive thirst, dry shrivelled lips, and dry cracked tongue.   At the same time the child vomits all his food, and the alvine discharges become frequent, loose, and consisting of half-digested aliment and slimy matter, like bookbinder's paste with shreds of spinage in it. He is constantly in a state of lethargy, from which, however, he is roused by the slightest touch; and his senses remain active to the last.   The countenance, when the disease is fully formed, expresses pain, but not acutely, the mouth has a sorrowful appearance, the look is languishing, the eye half open, the pupil turned upwards during sleep, and the whole physiognomy oldish.   He whines frequently, and is so very fretful that if any one looks at him steadily even from a distance he cries and shifts his posture. The pulse is at first slow and intermitting, and does not become quick till near the close; frequently there is a slight cough, and an erysipelatous inflammation of the eye-lids; the respiration is not

much affected at first, and becomes laborious towards the end. His belly is rarely much swollen. The urine is very often diminished in quantity.

In cases, which the author supposed from the foregoing symptoms to be of this description of disease, he found the mineral acids useful, but more recently he has resorted to the acetic acid, which he gives in the form of pyroligneous vinegar, with eight parts of syrup, and sixteen of the distilled water of orange-flower. He recommends at the same time that the food consist chiefly of barley-water sweetened with sugar, and that it be given in small quantities at a time. His description of the disease accords very nearly with that given by Dr Gairdner in the second volume of the Edinburgh Medico-Chirurgical Transactions, but is more minute. We question, however, whether it is, as the author thinks, *pathognomonic.—Ib.*

Section III.—Intelligence.

I. *A Series of Engravings, illustrative of the different stages of the Small-Pox and Varioloid Diseases ; to which will be added an Engraving representing the Vaccine and Chicken-Pox Eruptions during their course.* By J. D. Fisher, M.D.

We have examined these highly and accurately finished engravings, and with great pleasure add our hearty recommendations to those which accompany the author's prospectus. It is quite a curious fact in medical history, that no work exists devoted to the purposes of Dr Fisher's. This gives to his great interest. While we are writing, we hear of the actual existence of small-pox in towns and villages, more or less remote from us. This fact gives additional interest to the proposed publication. Many of our physicians have never seen the small-pox, and a still larger number know of the Varioloid only by report. Dr Fisher's work would be of great value at such a moment. It would enable the physician, at an early period of the eruption, to decide what it was, and thus secure to the public the speedy adoption of such cautionary methods as the

first appearance of such diseases demand. In our larger cities, these diseases are more common; but the progress of vaccination will at length make them rare. They will, however, in such places, occasionally appear, as amongst us, and make this work of Dr F. a most valuable possession.

The accuracy of the drawings may be fully relied on, when it is known that they were made at the *bed-side* of the patient, by a *skilful artist*, and under the *immediate and constant inspection* of Dr Fisher, during his late residence in Paris. We cordially wish him success in his undertaking. It is one of great labour and great expense,—which the profession, we have no doubt, will appreciate and reward. We think the community is interested so truly in the undertaking, that the author has a just claim on a public patronage. We would suggest, that a copy of his work should be owned by every town, as every town is liable to the visitations of the dreadful diseases of which it treats; and that vessels to foreign ports should be provided with the same.—Ed.

II. *Rhode-Island Medical Society.*

An annual meeting of the Rhode-Island Medical Society was held in Providence, June 28, 1826. After the ordinary business of the meeting was transacted, a Medical Discourse was delivered by Dr Levi Wheaton.

The following gentlemen were elected officers for the ensuing year, viz :—

Levi Wheaton, M.D., of Providence, *President.*

David King, M.D., of Newport, 1*st Vice President.*

Solomon Drown, M.D., of Foster, 2*d Vice President.*

Dr Edmund T. Waring, Newport, Dr William G. Shaw, N. Kingston, Dr Samuel West, Tiverton, Charles Cotton, M.D., Newport, *Censors for the Southern District.*

John Mackie, M.D., of Providence, Joseph Maman, M.D., of Providence, S. Augustus Arnold, M.D., of Providence, Dr Peleg Clarke, of Cranston, *Censors for the Northern District.*

Richmond Brownell, M.D., of Providence, *Recording Secretary, Librarian and Cabinet-Keeper for the Northern District.*

William Turner, M.D., of Newport, *Corresponding Secretary.*

Thomas M. Burrows, M.D., of Providence, *Treasurer.*

Edmund T. Waring, M.D., *Librarian and Cabinet-Keeper for the Southern District.*

Solomon Drown, M.D., was elected 1st, and S. Augustus Arnold, M.D., 2d Orators for the ensuing year.

Henry Armington, M.D., William H. Allen, M.D., Thomas H. Webb, M.D., Austin Brainerd, M.D., and Drs William Crook, David B. Slack, and Zina G. Paine, were elected Fellows.

Wright Post, M.D., of New-York, and Philip Syng Physick, M.D., of Philadelphia, were elected Honorary Members of the Society.

III.   *American Medical Publications.*

TREATISE on the Theory and Practice of Physic. By George Gregory, M.D. With Notes and Additions, adapted to the Practice of the United States. By Nathan Potter, M.D., Professor of the Practice of Physic in the University of Maryland, and S. Colhoun, M.D., Member of the American Philosophical Society, &c.

A Treatise on the Descriptive Anatomy of the Human Body. By W. E. Horner, M.D. 3 vols. Philadelphia.

A Treatise on Physiology applied to Pathology. By J. D. Broussais, M.D. Translated from the French, by John Bell, M.D., and R. La Roche, M.D., Philadelphia.

A Discourse on the Western Autumnal Disease ; read before the Tenth District Society of Ohio, at Chilicothe, May 30, 1826. By J. W. Vethuke, M.D.

A Dissertation on the Prophylactic Management of Infancy and Early Childhood. Read before the Massachusetts Medical Society, at their annual meeting, June 7, 1826. By J. H. Flint, Northampton.

TO CORRESPONDENTS.

The Editors offer their thanks to those who have aided them by their communications in conducting the Journal the last year, and ask of them a continuance of their assistance. They inform their readers with much pleasure, that arrangements are making, which cannot fail to add new interest and value to the miscellaneous department of the work. Should these be carried into effect, of which there is little if any doubt, the medical papers communicated to a very respectable Medical Society will be published hereafter in this Journal. Books sent for Review will always receive the early attention of the Editors.

REVIEW.

IV.

A Treatise on the Diseases of Females. By Wm. P. De-
wees, M.D., Adjunct Professor of Midwifery in the Uni-
versity of Pennsylvania, &c. &c.

Within the last four years, Dr Dewees has favoured his
profession with four large volumes, which treat on subjects
of much interest to the physician. The first is a collection
of ' Essays on various subjects connected with Midwifery.'
The second is a ' System of Midwifery ;' the third is devoted
to the ' Diseases of Children ;' the fourth to the ' Diseases
of Females.' The three first of this series have already
been noticed in this journal, and any degree of influence we
might exert upon our readers, has been employed to recom-
mend them to their careful study. The last volume of Dr
Dewees may be considered as completing the series, and
our students and practitioners have now within their reach
works on various subjects, which have not unfrequently
been treated of in the same volume, and which have quite
affinities enough to enable him who can write well on one
of them, to write so on all. The author too is from amongst
ourselves, and when to this we add, that he is learned in the
best writings of foreign authors on the subjects of his own

works ; that he has devoted many years to the practice of
midwifery and its connected subjects, and has withal been
extensively engaged in its practice, it cannot be denied that
he has claims to the favour of his profession, and to a respect-
ful criticism.

This work has one characteristic which marks all Dr De-
wees' writings. This is *minuteness*. He never seems afraid
or ashamed of detail, and takes the chance fearlessly of use-
ful diffuseness, rather than the risk of being misunderstood
by an elaborate conciseness. His business is with particu-
lars ; and though the observance of facts be the first step in
medicine as well as philosophy, it is the most important one
for the mass of men. It may be a greater effort to general-
ize ; but in our profession, generalization is not always safe,
and he must be exceedingly well practised in the detail who
will be able to use it with the most advantage. It is not
our purpose in these remarks to intimate that this, and the
other volumes of our author, are nothing more than a barren
and unconnected display of facts. On the contrary, his facts
are methodically arranged, and the inferences they authorize
are faithfully drawn. We mean only, that the author de-
signs to carry the student into the business, the practice of
his calling, as well as to be a companion for the study, and
we know no purpose of authorship which promises more be-
nefit. Our remarks are supported by what has already ap-
peared in this journal from the other works of Dr Dewees,
and they will be confirmed by our abstracts of this.

The volume begins with a chapter on the peculiarities of
the female system. It contains some observations on the
pathological relations of the uterus. We have long thought
that similar views with these were the correct ones ; our
attention was early 'attracted -to them by a manuscript copy
of Dr Wm. Hunter's Lectures on the gravid uterus, and ob-
servation has strengthened the opinions which were thus
early formed. Dr Dewees' opinions are contained in the
following extracts :—

‘ First.—We have ever found the unoccupied uterus to be one
of great passiveness when in a state of perfect health ; and that so

long as it preserved this condition, it manifested no agency in the production of a disease, or in modifying it, if present. Thus fever, inflammation, either local or general; or spasm, has never appeared to us to derive advantage, or suffer inconvenience, from the influence of this organ.

'Second.—That when in a state of disease, we have found several parts of the body sympathize with the uterus; as the stomach; the head; the breasts; &c. but precisely the same thing can be said of other parts of the body, for neither of which is such influence admitted as is claimed for the uterus. Thus the brain, the stomach, the kidneys, the liver, &c. when in a diseased state, will have particular parts deranged, by a sympathetic influence; yet it has never been asserted, that either of these parts, had at any other time, or under any other circumstance but disease, any agency in producing or modifying disease in any other portion of the body.

'Third.—While the uterus is performing one of its functional duties, namely, forming the menstrual blood; when it is known to be in a state of excitement, and decidedly engorged with blood; a time when it would most likely exert an influence, if it really possessed any; we never find this organ betraying a power over other parts, so long as the functional process is carried on healthfully; and that, during this period, we have hitherto not been able to detect the slightest influence over any disease, that may have been present in the system; nor has it ever made us vary a prescription, or modify a treatment.

'Fourth.—That when the menstruous function is performed with pain and difficulty, other portions of the system are found to suffer from sympathy; but in no greater degree, than these very parts have been known to suffer, when some other organ was the source of irritation. In dysmenorrhœa, we have known the back and stomach suffer severely; the first by pretty intense pain, and the second by severe vomiting; but we have seen the same consequences attend an irritated kidney, or an inflamed neck of the bladder.

'Fifth.—That, when this organ is labouring under severe disease; as inflammation, scirrhus, or cancer; where all its ordinary functions are either deranged, perverted or suspended, and this for a long period together, we do not find, that it involves the sys-

tem in any severer penalties, than any other equally important viscus would do, under similar circumstances.

' Sixth.—That, when its functional powers are irregularly and imperfectly performed, or altogether suspended, by some derangement or power, if the general health suffers from this cause, it is not because the uterus has any superior power to effect this, but because one of the links is broken, (and we are willing to admit it to be an important link,) whereby the chain of healthy functions is maintained. A similar condition of any of the other viscera, would be followed by the same consequences.

' Seventh.—That when the uterus is impregnated, various other portions of the system are deranged, in consequence of their strong sympathy with this organ ; but even here, the complaints are not sui generis ; for every one of them can be, and have been very often similated from other causes.* The whole phenomena of impregnation are so well understood as not to require reciting ; but has not almost every body witnessed the whole train of these morbid sympathies to arise from very different causes ?

' Do not let it be understood, from what we have just said, that we undervalue the importance of the uterus as an organ ; and as an organ, we are free to admit, that it has high destinies to fulfil ; we only wish to insist, that it has no exclusive, or concurrent power, to produce, modify, exalt, or diminish, any disease or affection of the body, beyond several other viscera, and perhaps less than some. The stomach decidedly, and perhaps the liver, have more entire influence, either in a state of health, or of disease, over the animal economy, than the uterus.' pp. 23—25.

Under diseases of the external organs of generation, a treatment of a disease of the nymphæ is mentioned, which the author has found more successful than any other. The disease is watery excrescence of these organs, and the treatment will be found in the following extract :—

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* In this assertion, we do not mean to include that beautiful and magic-like play of sympathies, which is established for the future welfare of the expected being ; namely, the swelling of the mammæ, and the secretion of milk. These parts have a mutual, and an associated sympathy, which they with great fidelity maintain, as long as either is capable of performing their appropriate functions. The nature and extent of these intercommunions are too well known to need a particular mention.

' Should these excrescences attend or follow a venereal affection, it might be well to try the effect of mercury ; but this remedy holds out but little prospect of success, unless there be an unsubdued venereal taint present. When they are in the form of warts, and are, as is the case very often, very numerous, nothing will succeed so well as keeping the parts very dry, and exposed as much as possible to the air. The following case will illustrate this practice sufficiently.

' Mrs. ———, who had been severely injured by her husband ; and who had the venereal disease in its most aggravated forms ; namely, chancres and buboes, about six months after she appeared to have recovered from these affections, found a vast number of little tumours spread over the labia, the nymphæ, and other portions of the vulva, which increased rapidly in numbers, as well as augmented in size ; and from the whole surface of which issued a disagreeable smelling matter, which excited itching, and when the parts were rubbed, blood would issue.

' The gentleman who had formerly attended this patient, prescribed mercury to salivation ; this was complied with, but the little warty tumours increased, and to such an extent, that a severe bleeding would follow every attempt at conjugal enjoyment. We were now consulted. The whole vulva was found to be completely occupied by these warty productions ; they were almost without number, and of great variety of sizes. As we had treated these productions in the male with success, by exposing them, and keeping them perfectly dry, it was agreed that our patient should follow this plan.

' The patient was ordered to her bed ; the labia were kept separate, by means of adhesive plaster : this being done, the whole vestibulum, and crop of warts, were exposed. A quantity of prepared chalk was dusted upon the surface, and no other application was permitted ; if we except the occasional washing with warm water ; that is, morning and evening. This plan, though a little difficult of accomplishment, succeeded in about a fortnight to remove every excrescence, so as not to leave a vestige behind.

' It was truly remarkable, to see how rapidly these parasite productions lost their life by depriving them of moisture. They would drop off in large portions at every bathing of the parts, until each one perished in its turn.' pp. 28, 29.

The labia of children are sometimes found coherent. Dr Dewees believes this to be very rarely a congenite formation, but is most frequently a consequence of disease. Inflammation is very apt to attack these organs, unless daily washed, and well dried afterwards. The consequence of inflammation may be the adhesion in question. This is very readily removed by the probe pointed bistoury, and subsequent adhesion prevented by interposing a dossil of lint wet in sweet oil between the cut surfaces. Dr Denman recommends a different treatment : viz. the forcible separation of the labia by pressing them asunder. This he alleges has always answered. We are disposed to agree with Dr Dewees, that in many cases this method would not succeed, or certainly not without so much violence and pain as to render the method by incision far preferable. We have done the latter operation, and can answer for the very slight suffering it occasions.

Abscess is not a rare disease of the labium. The texture of the organ favours much swelling when inflammation occurs here, and resolution is very seldom effected. It is a very painful disease, but the progress to suppuration is very rapid, and when fairly established the pain is mitigated. The treatment of the early stage has consisted in local or general bleeding according to circumstances, cathartics, opiates and poultices. These means have not been found so useful in the hand of the author, that he is disposed to recommend them. He prefers the application of the ung. hyd. fort. sine tereb. at once on the occurrence of the inflammation, and has for many years employed it with advantage. Suppuration is rarely prevented, and a question arises whether the matter shall be discharged by puncture, or be left for a spontaneous opening. Dr Dewees prefers the former method, and our own observation confirms his preference. Although relief follows suppuration, this is only comparative. Much suffering remains. This will be relieved by puncture as soon as fluctuation is evident, it is hardly necessary to say that it should not be done before. We have known repeated

suppurations or collections of pus to occur.   The puncture must be repeated under such circumstances.

The hymen is sometimes imperforate, and the catamenial secretion is retained.   Sometimes it is perforated with many small openings, and sometimes a single one exists in its centre.   The first is the most important, much disturbance attends the retention of the menses, and at length severe disease, and even death may ensue.   A case of the latter was published some time since in this journal.   There is in these cases an increase of suffering at the catamenial periods. The uterus at such times endeavours by active contractions to expel the confined fluids by which it is distended.   In some of these cases the fundus uteri reaches the navel, and the patient seems in advanced pregnancy.   Relief is to be looked for only in dividing the hymen.   This allows the fluid to escape.   Proper measures are to be taken to prevent union of the cut surfaces.   When a small hole only exists in the centre of the hymen, the catamenia may pass off.   But if the patient conceive, which may happen, labour will be impracticable without a division of the hymen. Dr Dewees gives his method of operating :——

'The late Dr Cleaver invited my friend Dr Chapman and myself to witness a case of this kind.   The woman had been in labour for at least twelve hours, with a first child, when we saw her; the pains were now strong and frequent; the perinæum very much distended, and alone supported the efforts of the uterus. The os externum was entirely closed, if we except an opening of about the size of a common goose quill.   Things had been precisely in this situation, several hours before we were called; and as all chance of a spontaneous dilatation, or even one effected by the force of pain, was at an end, it was thought best to cut the rigid hymen, and give a chance to the vagina to dilate, and the perinæum to unfold.

'I accordingly passed a probe pointed bistoury between the child's head and the hymen, and made a slight incision in the latter, which enabled me to introduce a finger, by the means of which, I dilated, or rather broke down, the whole of the resisting membrane, in such a manner, that nothing but the natural resistance of

the parts was now to be contended with. In about two hours more, the child was safely delivered, and without the parts sustaining any injury.

' The mode of operating in this case, perhaps may not have been different from that pursued by others under similar circumstances ; for none, so far as I know, have described the exact manner in which it was performed. But, as they have been silent upon that subject ; and as my previous impressions as to the mode of afford-ing relief, were altogether different from what I found necessary in this case, I think it best that it should be clearly understood, that all that can be necessary to ensure success to the operation is, merely to destroy the continuity of the hymen in one part of it ; for by this means the opening will be large enough immediately, for the finger to pass, by the aid of which, by giving it a rotatory motion, the adhesions of the hymen with the vagina may certainly be destroyed—at least, so it appears from its success in this case. I cannot think it ever necessary, on reflecting upon the mechanism of these parts, to cut into either the vagina or perinæum, or even to wound them.' p. 41.

Preceding the diseases of menstruation, or deranged men-struation, as the author terms it, is a history of this function. There is much in this chapter that is interesting ; and some facts are stated which are novel, or which have not before been brought forward under similar relations. The doctrine that menstruation is a secretory function, is maintained, and with it, the corresponding one, that the inner surface of the womb is lined with a mucous membrane, or at least with a texture that has a secretory power. Both these views have been opposed. It would seem that the principal difficulty in the way of admitting that the menstruous fluid is a secretion, is the fact that the coloured portions of the blood are a part of it. In other secretions this is not the case ; and other re-semblances which the uterine fluid has to common blood have been advanced by those who oppose the doctrine, that it is a genuine secretion. These objections are not valid. A mere difference of properties from those of the blood, out of which they are made, is not the sole or leading circum-stance which enters into the character of secretions. It is their

own proper character which makes them just what they are, the products of certain actions proper to certain textures; and no one can deny this quality to the fluid in question. The actions of the organ in which it takes place are determinate and functional, and in no sense merely accidental and unimportant. It has physiological and pathological relations, which, taken together with it, involve the most interesting questions regarding the peculiarities of the female system, both in health and disease.

Menstruation has been considered by some to be an acquired, and not a natural function. The cases, which have occasioned this opinion, have been those in which conception has been supposed to have taken place before the appearance of the catamenia. Such cases have occurred. It has been further supported by some rare instances, in which conception has taken place after the natural cessation of menstruation. Some mistake has existed in regard to these cases. The mistake is founded in overlooking the fact, or in not knowing it, that occasionally the menstruous fluid wants its usual colour. Thus it may begin, and be so far established, as that the individual may be susceptible of pregnancy, and still want its ordinary colour. The same thing may happen, it may be years after the discharge has naturally ceased, and conception occur. The author has known instances of both; and one in which a female conceived who was 61 years old, and in whom the catamenia had ceased at the usual period. This chapter contains many sensible views on the dependencies of the ovaria and uterus upon each other, and on the physical necessity that a due development of each should exist in order to the true performance of their individual and associated functions.

A very interesting subject is glanced at in this chapter; the occurrence of a vicarious hæmorrhage, where the uterus fails to secrete the menstruous blood. Dr Dewees does not say, that he thinks such cases never existed, but declares he has never met with such. If any weight at all should be given to them, which implies at least that he strongly doubts if they deserve any, they can, in his estimation, only be re-

garded as exceptions to a rule, and from what immediately
follows, not more frequently to be looked for than the exist-
ence of fœtuses in the ovaria of virgins. We confess we
hold different opinions on this subject from the author; and
there seems no good reason why vicarious hæmorrhage under
the circumstances should not take place. What is the simplest
explanation of the secretion and discharge of the catamenial
fluid from the uterus? We answer, there is within the uterus
and lining its cavity a texture fitted for the secretion, and
which we believe to be a mucous membrane; that there are
blood vessels in this organ which convey blood to the vessels
of this texture; and that, periodically, an extra quantity for
the purposes of the secretion is determined to these vessels,
it may be in the first place from the circulating system
generally to the uterus, and afterwards from this to the se-
creting texture; or that the quantity usually circulating in
the uterus may be periodically determined to the same tex-
ture. Suppose, for a moment, that the secretion does not
take place; that period after period passes without any dis-
charge, disease more or less severe occurs. Sometimes its
principal seat is the head, and pain there is its leading symp-
tom ; sometimes the lungs, and cough, dyspnœa, and hemor-
rhage follow; sometimes we have simple hemorrhage with-
out cough. No matter what the disease is, or what organ
is its seat, we almost invariably find the pulse affected by it,
and with this the actions of the extreme vessels more or less
disturbed. Suppose further, we have in such a case a pe-
riodical hemorrhage from some part, the nostrils, the lungs,
or the stomach, and that much relief is produced by it,—
that this relief is temporary, the original symptoms return-
ing in three or four weeks after, and it may be in less time,
or even greater; and that, again, an unprovoked hemorrhage
occurs from the same organs, and is followed by similar re-
lief; is it not fair to infer, that it occurred originally, and
continues to occur, in consequence of the failure of the pro-
per organ to perform its functions, and that it is a process
purposely instituted to supply their place? If these positions
be admitted, the case of vicarious hæmorrhage is made out,

and the observations of many writers of eminence confirmed by the *a priori* argument, which structure and function mutually furnish. We have found our examples in mucous textures, the lungs, and the nose, and have inferred under the circumstances, that this membrane being the same, as admitted by the author, with that which lines the uterus, it may perform a similar function with that of the latter. We have a case at this moment under our care which illustrates much that has now been advanced. It is a case of chronic amenorrhœa. Hemorrhage has occurred again and again from the lungs. The leading symptoms in the intervals are headach, intolerance of light, dysuria, a fixed pain in the abdomen, in a spot between the umbilicus and symphysis pubis and tumid abdomen. The blood is raised without cough, is very dark, liquid, having some very small, soft and dark coagula, if such they may be called. When hemorrhage occurs, the headach and other symptoms are essentially diminished. The former is agonizing when the period passes without the hemorrhage. Blood-letting, local and general, affords but slight relief. There is not a symptom of serious morbid lesion of the lungs. Is it not fair to conclude from these facts, that an altered action in the mucous texture of the lungs, in this case, occurs periodically, and is a compensation for the failure in the uterus of its accustomed functions ?

The pathological states of the catamenial function, according to the author, are the following :—

' 1st. Its too tardy appearance.

' 2d. Its interruption after having been established, commonly called the suppression of the menses.

' 3d. Its excess of quantity.

' 4th. Menorrhagia.

' 5th. Dysmenorrhœa or painful menstruation.

' 6th. Its irregularity towards the decline of life.' p. 66.

And, first, of the tardy appearance of the menses.

' There seems to be four conditions of the female system, in which the menses are tardy in their appearance: *a*, Where there is little or no development of the genital organs ; *b*, where it is

taking place very slowly; *c*, where this development is interrupt-
ed by a chronic affection of some other part; *d*, where the most
perfect development has taken place, but they do not make their
appearance.' pp. 67, 68.

First condition, *a*. In this the physician has very little
if any thing to do. The organs are not in a condition to
perform their function, and his influence is to be ex-
erted upon the parents, to quiet their anxiety and to
prevent unnecessary and injurious interference. A case
is given, in which death occurred from the oil of savin,
which was prescribed by an empiric. Dr Dewees had
been in the first place consulted. The patient was fifteen
years old, and was in perfect health ; and the absence of
the catamenial function was evidently the consequence of
an imperfect development of organs. He very judiciously
advised, that nothing should be done. His advice was not
followed ; and six months after he was called to the patient,
and found her suffering from profuse pulmonary hemorrhage.
She died in a few days after. The second condition, *b*, is
marked by an imperfection in the organs concerned, which
differs from the last principally in this, that some develop-
ment has taken place, but this goes on slowly. At times,
the health suffers slightly. The patient has headach, ring-
ing in the ears, palpitation, some loss of strength, and loss of,
or whimsical appetite. Fluor albus is not an unfrequent
symptom. We have two objects in view in such a case ; the
invigorating the system, and, if possible, aiding the uterine
system in acquiring its natural state, as it regards structure
and functions. The author separates these, and though
they would seem to proceed together, we will extract what
he says respecting the second indication. It is proper to
premise, however, that, for the first object, he recommends
a judicious course of exercise, which nothing is to interrupt,
and a strict attention to diet :—

‘ The second must be accomplished by such medicines as appear
to have a direct, or indirect action upon the uterus itself; of the
direct, the tincture of cantharides appears to be the most efficient,
and should be preferred to all others when leucorrhœa attends—

thirty drops should be given three times a day, until this discharge cease. We may gradually increase the dose, should the complaint be obstinate; for it is of primary importance that it be removed; for we need scarcely look for the catamenia, while this remains in any force—leucorrhœa is a kind of local depletion, and prevents that partial congestion so favourable to development, and the production of the catamenial discharge. The parts should be regularly bathed every day with warm water; especially, during the continuance of the fluor albus.

'Of the indirect kind, aloes seems to be the most certain—the influence of this drug upon the uterus, has been very long acknowledged—and was much extolled for this purpose by Morgagni and his contemporaries—it should be given in very small doses, and perseveringly continued; this medicine is perhaps preferable to the tinct canth. where leucorrhœa does not attend; the following is the formula I generally employ:

> ℞.   Gum. aloe. suc. Ƶss.
>   Pulv. Rhei. opt. Ƶj.
>   Ol. Caryoph. gut. iv.
>   Sapo Venet. gr. viij.
>   Syr. Rhei. q. s.—M. f. pil. lx.

'One of these to be given every night, night and morning, or every other night, as they may affect the bowels—the object is to keep the bowels free, but not purged. This prescription is a remarkable instance of the power of combination; for the very small dose just recommended, will sometimes act with great force upon the bowels—so much so, sometimes, as to oblige us to reduce the above quantity one half. The same regard must be paid, at the same time, to air, exercise, and diet, as just recommended.' pp. 70, 71.

We shall not stop to notice particularly the third condition, as it is obvious, that the treatment of the cases included under it, resolves itself mainly into the treatment of the disease, the existence of which prevents the due action of the uterus. The last condition furnishes a case, and the recommendation of madder and the tincture of flies. The first is most useful, if given at those periods when there is evidently an effort making to establish the discharge. We give the author's formula, and the case above mentioned :—

'I have found that a strong decoction of this wood is of equal efficacy with the substance, and is much more easily taken—a pint of boiling water is directed to be poured upon an ounce of finely powdered madder, and a scruple of bruised cloves, and gently simmered for fifteen minutes; when cool, strain off, and give a wine glassful every three hours—I have lately had a case of this kind, where the madder succeeded most promptly. This case rarely gives much trouble, unless the interruption has been occasioned by imprudent exposure to wet or cold—in this instance, it must be treated as an obstruction.

'A remarkable case of the non-appearance of the menses, is at this moment under the care of my friend Dr Physick and myself. A lady of thirty years of age, had the usual concomitants of puberty at the ordinary age: these signs, however, were not followed by the catamenial flow, though pain in the hips, loins, abdomen, particularly in the region of the uterus; numbness of the thighs; &c. periodically, seemed to premise it would be so. In this situation this young lady has remained to the present period. Previously to my seeing her, she had tried, without the least benefit, all the known emmenagogues; as her sufferings were severe, and so long continued, several medical gentlemen were consulted previously to my seeing her; and so effectually were all the established remedies tried, that I was left almost without resource. On examining her per vaginam, nothing faulty could be discovered about the uterus.

'The only thing that suggested itself, as a *possible* remedy, was to pass a flexible catheter into the cavity of the uterus, under a hope, that something in the neck of this organ might obstruct the flow, of perhaps accumulated menses. This suggestion was accordingly acted upon; and the extremity of a catheter was passed an inch and a half through the neck of the uterus. The withdrawing of the instrument, was not followed by a discharge of any kind; and consequently, our hopes were immediately destroyed, and our patient nowise relieved. She has never been troubled with leucorrhœa, or any other discharge from the vagina. This case we looked upon as not less ambiguous, than hopeless. The sufferings of this patient are great; the abdomen, during the periods of pain, is very tender to the touch, and a little distended; a considerable hardness is felt immediately over the region of the pubes; but no

circumscribed tumour, like the distended uterus, could be felt. This case is remarkable for several of its circumstances; 1st. there is every outward manifestation of the development of the genital system; 2d. at every return of the period at which this discharge should take place, there is pain and other symptoms which commonly announce this discharge to be at hand, when not regularly established; 3d. as far as an examination per vaginam could ascertain, there was no defect in the uterus itself. In this case, the most probable conjecture I can make is, that there is an anatomical defect in the secreting surface of the uterus itself; and that the pains which are endured at each returning four weeks, may be owing to the plethoric, or engorged state of this organ, and which is not relieved, as is common, by the secretion of the menstrual fluid.' p. 73, 74.

Suppression of the menses follows, but we have in a former article presented our readers with Dr Dewees' account of this, and with his method of treatment. Some symptoms, however, are not noticed by him; they belong to a disease, which, as far as we recollect, has not been described by any author. Still this disease is so striking, and, as far as our observation goes, is so frequent a consequence of suppression, that we shall not omit the present opportunity to notice it in detail.

The disease to which we refer is occasioned by wetting the feet, or by some similar accident, at the time of menstruation; or sometimes when under the lochial discharge. The first effect is a sudden stoppage of the uterine evacuation. This, like a sudden interruption of sweating, occasions inflammation; which inflammation may occur in various parts, but commonly affects the uterus and the neighbouring parts, and sometimes the pleura and lungs, at the same time. No doubt it often happens, that the catamenia or lochia soon return, and that the inflammation is arrested thereby at an early stage; and then the circumstances are not distinctly noticed, or at least are never made known to the physician. But, in some cases, though the natural evacuation be restored and its temporary interruption be scarcely noticed, **the inflammation goes on.**

The effects which ensue in the pelvic organs, and in the vicinity, are these. There is a sense of uneasiness in those organs, often amounting to great pain, and sometimes accompanied by *bearing down.* Strangury is added, the urine being much diminished. In the worst cases, the urine is first discharged with great difficulty and with sharp, piercing pains ; but frequently, and in very small quantities ; and at length is retained entirely, the pains continuing. There is also, very commonly, some small spot in the hypogastrium, sometimes near the *linea alba,* sometimes quite in one of the iliac regions, which is painful, a little hard and tender on pressure. The lower part of the abdomen sometimes becomes enlarged, probably from distention of the intestines by flatus.

In bad cases, likewise, the catamenia become permanently interrupted for several months. In these cases, the difficulty in the bladder is apt to be prolonged, and there occurs a sudden discharge of bloody pus from the vagina. Whether this discharge is from the uterus, or from some neighbouring part, we could never ascertain. It always affords great relief ; but the patient is liable to its recurrence again and again. But the entire retention of urine, with the other more grave symptoms, do not occur in one case in twenty. Yet, these having once occurred, the patient is very liable to a recurrence of them at subsequent periods.

The affection we have described is accompanied, from the first, with constitutional and local sympathy. There is chilliness, headach, pain in the back and limbs, &c. as in other cases of *taking cold.* There is also nausea, and most commonly vomiting. The strength is sometimes so prostrated, that the patient is compelled to go to bed ; but maid-servants, who from their situation are very liable to the disease, frequently drag about their work for a day or two. There is often pain in the side, cough, &c. and sometimes a sore throat. The face becomes suffused, and expresses uneasiness, and often has an appearance of confusion ; but the patient is not apt to make much complaint. She seldom speaks of the strangury and pains above the pelvis, though

she is thinking of nothing else. Hence there is an obscurity about the case, where the disease is not suspected, and the patient is sometimes thought stupid, or obstinate. Even when no urine is discharged, the young patient will keep the matter secret for two, and even three days. This she is able to do the longer, because the secretion is so small. The consequence is however very serious ; as the bladder appears to lose the contractile power, in some measure. It is probably from this cause in part, that in some rare instances the catheter must be employed for weeks in succession, and occasionally for years.

It is probable, that the extent of the inflammation differs in cases of the kind we have described. But in every case there appears to be inflammation in and about the uterus. When the catheter is first employed, the *meatus urinarius* is found swollen and tender. The instrument gives pain ; but it is passed without meeting any obstacle. But it is remarkable, at least in two or three cases which we have attended, that when the retention of urine is of long continuance, the instrument is passed without difficulty and without pain. In such cases, the urine will at the first moment flow in a full stream ; but the bladder does not become emptied without long delay, and sometimes not without deep pressure above the pubes. Hence it would seem, that the chronic difficulty in the bladder arises from a loss of muscular power in its coats.

At an early period, the disease here described may be easily relieved, requiring only the common treatment for inflammation. A cathartic, a few pills of calomel, antimony and opium, and sometimes a blister, will remove all difficulty. But when the disease has been neglected, a permanent dysuria, or a retention of urine, and a frequent recurrence of inflammation near the uterus, with or without suppuration, irregular menstruation and general constitutional disturbance unite in rendering the patient very miserable, though not sufficient to destroy life. All this may be prevented with great care ; but protracted cases occur for the most part in those, who depend on their personal labour for support, and

who cannot command the comforts and attentions necessary for their welfare.

The amenorrhœa, and the means for removing it will occupy the attention of the practitioner. We know of no specific remedies for accomplishing the latter object. Our means are to be directed to the whole state of the patient; for we look to the restoration of general health as to the only rational ground on which to rest the re-establishment of local functions. There will be a period of approximation to health, at which attempts may be made to restore the suspended function, and Dr Dewees has offered very judicious views respecting both time and means. We have already given a reason for not detailing these in the present article.

Other diseases of menstruation are the immoderate flow of the menses, and menorrhagia. These are separated from each other by the author, and dysmenorrhœa, and decline of the menses, are placed between them. His views of these two forms of deranged function authorize this arrangement, though from the literal and true meaning of menorrhagia we see no good reason for this separation. The author, and he has others who agree with him, says that these are two very different things, or he means two very different things in his use of the terms. By immoderate flow he understands merely an increase of the quantity of the secretion over that which is natural or habitual to the individual. By menorrhagia he means simple hemorrhage. Now, does the etymology, the true meaning of this word authorize this construction? And is not some confusion made by this rendering of the term? We do not stop to answer these questions. Immoderate flow, according to Dr Dewees, is a very rare occurrence. He has met with but one case in which this existed in such a degree as to impair health, and to require medical treatment. Menorrhagia, as Dr Dewees defines it, 'is an immoderate discharge of *blood*, properly so called, or coagula, or both, from the internal cavity of the uterus; recurring at the menstrual period, and following the secretion termed the menses.' p. 104. This disease may occur in two very different descriptions of patients: the plethoric and seeming-

ly the most healthful; and the feeble and irritable, or diseased. The symptoms in each differ, and the treatment requires much modification.   In the first class there is a general fulness, which, while it produces, may find a temporary relief in the hemorrhage.   In the second, excessive determination may take place towards the uterus, while an obvious deficiency exists elsewhere.   The local congestion produces the hemorrhage, and may like the former be relieved by it.   But in this case, the expense to the whole system is very great, and is disproportioned in its ultimate effects to what happens in the first description of cases.   The health is already by the supposition very much impaired, the waste from the womb is very imperfectly repaired by the assimilating functions, and the patient at length exhibits the extreme of exhaustion. These pathological views may present some of the indications of treatment.   The first class of cases demands such habits of exercise and such diet as will diminish the tendency to plethora, and such direct treatment as will diminish the existing fulness.   The treatment then has regard to the intervals of the menses, and to the periods.   Much that has been now said refers to the former.   The treatment of the period itself, or of uterine hemorrhage in the unimpregnated state, is too well established to be particularly given here.   We extract that part of the chapter which relates to the second variety of cases of menorrhagia :—

    ' The variety now under consideration, is most common to women of an irritable and feeble constitution ; and where, agreeably to Gardien, there exists an accumulation of vital power towards the uterus.

    ' This variety, like the one just spoken of, is accompanied by some pain and heaviness in the uterine region ; heat, and sometimes itching in the pudendum.   The pulse is small, and rather frequent ; the extremities disposed to become cold ; the face pale, and sometimes cachectic ; the appetite feeble ; the tongue frequently found furred, especially in the morning ; palpitation of the heart ; and respiration hurried upon motion.

    ' The indications in this variety, are to destroy or diminish this congestive tendency of the uterus ; and to moderate, or interrupt the unnatural discharge.

'The first indication must be attempted to be fulfilled, by equalizing the circulation as much as possible, by determining it towards the surface ; by well regulated exercise ; by wearing flannel next the skin ; by keeping the lower extremities warm ; by a nutritive and easily assimilated diet ; abstaining however from stimulating condiments and drinks ; by preventing constipation, by even purging with aloetic medicines ;* by diverting the current of blood to some neighbouring part, by dry cupping the small of the back ; and blistering the inner side of the thighs. Emetics, and especially the ipecacuanha emetics, are thought to be useful in this variety of menorrhagia ; they were first proposed by Dr Bryan Robinson for hemorrhagy, and have since been recommended in menorrhagia ; but of these, we can say nothing decisive from experience. If useful at all in such cases, it must be just before the menstrual eruption ; for during the flow, we never remember to have seen vomiting abate the discharge when it came on spontaneously, though this may have been pretty severe. Taking a grain of the sugar of lead with a little opium, three or four times a day in the absence of the discharge ; or drachm doses of the tincture of rathany, will be found highly useful.

'To fulfil the second indication, the means are precisely the same as recommended in the first variety ; with this exception ; that if the discharge be long continued, we may employ the dry cupping, and apply blisters.

'In both varieties, we have often found decided advantage from injections per vaginam, made of the solution of the acetate of lead, of sufficient strength—that is, two drachms to a pint of lukewarm water. Half of this, or one-third, may be thrown up the vagina by means of a syringe, three or four times a day.

'In all cases of menorrhagia, opium is found highly useful, when combined with small portions of ipecacuanha ; and should always be exhibited, so soon as the pulse will bear its stimulus. It should

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* We have, in several cases of menorrhagia, in women somewhat advanced in life, found great advantage from the hiera picra as a cathartic ; it may be used agreeably to the following formula :

   B. Hiera Picra ℈j.
       Sapo. Venet. gr. viij.
       Syr. Rhæi. q. s. M.—f. pil. xx.

One or two of these taken every night, until the bowels are found free.

certainly be given at night, if pain prevents sleep ; or even during the day, if necessary from the same cause.

'Gardien makes a third variety of menorrhagia; namely, ' a spasmodic.' Of this variety I can say nothing ; nor do I believe in its existence ; the only evidence of this variety is, that menorrhagia is sometimes relieved by opium, or other antispasmodics.' pp. 115—117.

There is a variety of the disease in question to which the author does not distinctly allude, but which we are disposed to think is not of very unfrequent occurrence, and which is not very unfrequently an instance of excessive flow of the catamenia, or, as we should call it, genuine menorrhagia. This is the case of sub-acute and chronic inflammation of the womb or its lining membrane. It is certainly not a strange thing, that an increased secretion should be a consequence of such a state of the organ. The analogies of the system every where support the doctrine. It is a matter of universal observation and admission, that a slight degree of inflammation in mucous textures always increases their secretions; and it is equally known, that if such a degree of the disease become chronic, or pass into that stage, that an increased secretion becomes habitual to the part; witness catarrh, whether acute or chronic. The same thing happens in the uterus, and the analogy is complete, by this additional fact, that menorrhagia in these cases knows no intervals, or has no regular periods for its returns, either existing constantly with occasional exacerbations ; or nearly ceasing, and then occurring as before. We do not here give an imaginary case ; nor is it one which has for its true cause important or even slight organic lesion of the womb. The organ may be somewhat enlarged, but no more so than in its other morbid states, accompanied or produced by an undue determination of blood. The case we have described is a very troublesome one. It is marked by the discharge of the catamenia, with occasional hemorrhages, under excessive excitement of the system ; with fixed but not severe pain in the uterine system ; with much emaciation, and general weakness, or incapacity for exertion, with a morbid pulse,

skin and tongue, and especially with obstinate costiveness. This last may have been its principal cause, or always aggravates it ; but we are not investigating its causes. The best treatment of this disease differs in some respects from either of the methods of the author in the other varieties. Astringent injections, or their internal use, and especially tonics and stimulants to give tone, are never useful alone, and are frequently injurious when employed with an opposite class of remedies. The best treatment is found in general and local alteratives. Local abstraction of blood, and vesication, are among the last ; and alterative doses of calomel and antimony, with or without opium, as may be indicated by the state of the bowels, rank highest among the first. The diet is to be nutritious, and at the same time antiphlogistic, and due attention should be given to the bowels.

We have in a former number noticed the author's views of dysmenorrhœa, but think the following extracts will be acceptable to our readers :—

‘ The sufferings at the menstrual periods, are severe sometimes beyond description : they resemble, in point of intensity, the pains of labour, or an abortion, properly so called ; for, to either, it may be said to have a strong analogy. It usually commences by a slight menstruous discharge, which is pretty suddenly arrested : a pain almost instantly ensues, which is described by women as a forcing, bearing down pain, returning at longer or shorter intervals, until a membranous substance, or small coagula, are discharged. If it be a membrane-like substance, it will be found of unequal size ; sometimes small, at other times large, and resembling the cavity of the uterus in shape ; at other times, it will be broken into many fragments. After the expulsion of this substance, the woman enjoys ease, unless there be a fresh production of it ; in which case it requires fresh contractile exertions of the uterus for its expulsion.

‘ The quantity discharged is very various ; sometimes it is small, and at other times very abundant : I have seen a portion not much larger than my nail ; and again, I have witnessed as much as would fill a small tumbler. The period employed for the expulsion of this

substance, is various; sometimes requiring but a few hours, at other times several days. The degree of suffering is not always in proportion to the quantity of substance expelled; indeed, the pain would rather appear to be less, when much is discharged; which, perhaps, is not of difficult explanation.

'There appears to be two distinct states of this affection: one, where the mammæ sympathize with the uterus, by becoming tumid, and oftentimes extremely painful; the other is, where there is no such affection. These two conditions are not equally manageable; the one accompanied with painful breasts, so far as my observations have gone, is the most so of the two.

'Besides the alternate or labour-like pains, I have just mentioned, there is almost always a permanent one in the back, hips, and loins, which continues until the alternate cease: indeed this aching pain sometimes precedes the others, and announces the discharge to be at hand.' pp. 86, 87.

'The treatment of this complaint consists of the temporary and the radical; the first consists in the administration of remedies to relieve pain at the commencement of, and during the attack; and the most efficient, and uniformly certain, that I have yet discovered, is camphor in sufficient doses; the following is the formula I generally use:

> ℞.   'Gum. Camph. ℈ i.
> Sp. vin. rect. q. s. f. pulv.—Add
> Pulv. G. arab. ʒ i.
> Sacch. alb. q. s.
> Aq. Cinnam. simp. ℥ i.
>   M.

One half of this draught is to be given the instant pain is experienced; and if it be not relieved in an hour or two, the other half is to be given—this quantity, however, is not always sufficient to subdue pain; in this case, let the mixture be repeated—or the same quantity of camphor may be finely powdered, and given in ten grain doses every hour, entangled in a little syrup of any kind, until relief is procured. Sometimes the system is much deranged in this complaint, and will bear nothing—when this happens, I order thirty or forty grains of camphor to be rubbed down with a few drops of the spirit of wine, to a very fine powder; one drachm of

laudanum ; and three ounces of thin starch or flaxseed tea, as an injection. Should this be too sudddenly discharged, it may be repeated.

‘ Opium, in various shapes, has also been administered ; either alone, or in combination with camphor, or ipecacuanha. The ergot has also been recommended. I have tried it ; and, with one exception, it has failed. It must, however, be declared, that my use of this substance has not been extensive ; and even in the few trials I made, I perhaps may not have given it a fair chance. These doubts have lately arisen, from two or three of my friends telling me it had been entirely successful with them ; and, also, from a case of success occurring within a short time in my own practice. As the case was unusual, by combining with it a rare occurrence, namely, menorrhagia, I will relate it.

‘ In October, 1825, Mrs. ———— applied to be relieved of painful menstruation, together with an immoderate discharge of blood. The pain appeared to be produced by the discharge of coagula ; at least there was no appearance of membrane in what was passed. She also had leucorrhœa to a considerable extent. I ordered her the ergot in the following form.

> ℞.   Pulv. secale cornut. ℨss.
>   Ext. gentian. ℨj.
>   M. f. pil. xv.   One of these was taken every morning, noon, and evening.

‘ She began the use of the pills about a week after a period, and continued their use until the next made its appearance. At this time she found herself much relieved, both as regarded pain, and the quantity discharged. The next period was still better ; and since that she has had no farther trouble. Warm bath, pediluvium, and bleeding, have also been prescribed ; but nothing has succeeded with me so well as camphor.

‘ The radical treatment consists in the exhibition of remedies in the interval, with a view to prevent a recurrence of pain—the one which has proved most successful, is the volatile tincture of guaiacum, given as directed in suppressed menses. The same regard to the state of the system as is there recommended, is also here insisted on. Perseverance for two or three months is oftentimes necessary. I think I have observed that this medicine is more decided-

ly useful, where the first menstrual period after its use, is more than usually severe. This has been pretty uniformly found a favourable sign.

' Though the tincture of guaiacum has been generally success-ful, it has not been uniformly so.* In two instances where it failed, the ext. cicutæ succeeded ; and in one other, where it had not been successful, the tincture of cantharides gave perfect relief.' pp. 88—90.

On the decline of the menses, Dr Dewees makes many very useful remarks. He very properly combats the notion that the time when this occurs is a critical one to females. He says, ' I feel it a duty to declare, that they are not ne-cessarily more obnoxious to disease at this, than at any other period of their existence.' p. 94.

We pass the ' diseases of pregnancy.' Many of them are treated in the system of midwifery and other writings of the author ; and though this part of the volume deserves the same commendations with which we began our present la-bour, we do not feel entirely sure that this class of diseases strictly belongs to the work. Pregnancy is an accidental function or state of an organ, and of the system ; and its dis-eases do not seem to belong to those which proceed essential-ly from the peculiarities of the female, are directly incident to those peculiarities, and in no sense require the agency of an accidental state of an organ, and a natural and healthy acci-dent to produce them. Our reason, however, for omitting to notice them here, is principally contained in the remarks at the beginning of this paragraph.

A chapter is devoted to leucorrhœa. We shall make a few extracts, which will present in part the author's views respecting this disease. And first of its causes :—

' That a variety of causes may dispose the uterus and vagina to take on the leucorrhœal action, we have no hesitation to believe ;

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* This remedy, in the hands of others, I learn has not been equally successful. I can only account for this in one of two ways ; first, they have not, perhaps, pre-pared it as directed ; and, second, and the most probable, they have not perse-vered sufficiently long in its use ; for it is still successful in most cases in my hands.

but the production of the complaint requires an immediate exciting
cause ; and that cause must be of an irritating kind. I would there-
fore only acknowledge—

' 1st. The leucorrhœa of direct irritation.

' 2d. The leucorrhœa of remote or indirect irritation.

' 3d. The leucorrhœa of habit.'   p. 223.

Of its origin, Dr Dewees is disposed to think that with
the exception of a very few cases, leucorrhœa is a disease of
the vagina :—

' But whether this discharge proceeds from the uterus or va-
gina, or both, it is evidently maintained by some local, or perhaps
specific irritation ; but on the nature of which I am not prepared
to decide ; but its influence is evidently spent upon the vaginal
lacunæ, or glands, which, in a state of health, furnish the moisture
so important to this part.   In my present consideration of this sub-
ject, I would wish to be understood, not to include the discharge
from this part, which is symptomatic of some derangement of the
proper substance of the uterus, or that which always accompanies
a prolapsus of this organ ; these will be treated of under their re-
spective heads.

' The idiopathic forms of this disease may be divided into three
stages ; each of which requires a little difference of management ;
in the first, or most simple form, the matter discharged is glairy
and transparent, or resembling a thin starch made by boiling ; this
very often accumulates from its tenacity, in considerable quantity
within the vagina, and is then suddenly discharged, either by its
own weight, or from some sudden exertion of the woman ; espe-
cially, upon stooping, or lifting a weight—this never becomes ac-
rid, unless there is the most reprehensible neglect of cleanliness ;
nor, so far as I have observed, is the system generally implicated,
though it may take place in women constitutionally plethoric, or
very feeble ; and where it is easy to suppose, it might be called
into action by a trifling irritation.   But in this instance, the irrita-
tion, or inflammation, which provokes an increase of discharge
from these parts, is so entirely local and mild, as to have no influ-
ence whatever upon the general system.   But this is not always
so ; especially if the system is easily brought into sympathy from
local irritations ; in this case, we shall observe presently, the san-
guiferous system will be found disturbed.

'It is probable that this peculiar mucus may be furnished by the neck of the uterus alone, and therefore, this first stage may consist of the inflammation of this part; since, agreeably to Mr Clarke, this part yields a fluid differing, at least in sensible qualities, from that found upon the surface of the vagina. He informs us, that " the mucus secreted by the glands of the neck of the uterus, contains less water than any other mucus in the body, approaching nearer to the nature of a solid than that of a fluid body: it is semitransparent, and possessed of a great tenacity; it adheres to the fingers like bird-lime." " These glands, in a state of health, perform the office of secretion in pregnancy only; or if at any other time, the matter secreted is of a very different kind, so resembling common mucus, as not to be distinguished from it." Clarke, vol. i. p. 17.

'In the stage now under consideration,* (namely the first,) we sometimes find the discharge vary from time to time, without the woman being able to account for the difference of appearance: but these changes must have causes, however occult they may be: I think I have almost always traced them to some imprudence on the part of the patient; for though the complaint is confessedly a troublesome one, it does not always challenge the attention of those labouring under it, sufficiently to secure their best aid in getting well of it—hence, errors in diet will be committed; costiveness permitted for a long time together; cleanliness will oftentimes be neglected; over exertions will be made, or a series of fatiguing duties will be submitted to, all of which will have more

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* It has been thought by some, that the difference in the appearance of the discharges in leucorrhœa, and from which we derive the stages into which we have divided this complaint, did not indicate the degree or the inveteracy of it, but determined the part of the genital system which furnished it, or the specific nature of the inflammation that produced the matter discharged. Thus Chambon (a) thinks when the discharge is green, that it proceeds from " une disposition prochaine au scorbut, qui ont un vice dartreux ancien, ou scrophuleux ou érésipélateux." But the various shades of colour which this discharge assumes, only manifest the intensity of the irritation. Notwithstanding we have divided the complaint into three stages, because in general when left to itself it goes regularly through them, yet the force of the irritating cause may be so very great as to make the first discharge observed by the woman, of the quality of the third stage. We have seen this in a number of instances; but we think it has almost always happened after some severe mechanical injury done to the vagina; hence, it is more frequent after severe labours.

(a) Vol. 2d, p. 112.

or less influence upon the parts concerned in the production of this discharge.' pp. 235—237.

'In the second stage, the matter discharged has a white, yellowish, or purulent appearance—it is usually more abundant than in the first stage; and is constantly leaving the vagina by a uniform stillicidium. If proper attention be not paid to cleanliness, it may become offensive, or may even excoriate—this state is almost always accompanied with pain in the back, hips, and in the region of the pubes; the woman's complexion is generally sallow; and when the discharge is excessive, she becomes subject to a train of nervous symptoms, that are both troublesome to the patient, and difficult of management to the physician. This stage consists of an extension of the inflammation with which the first stage commenced; it has now spread to the vagina, the surface of which at this time principally furnishes the fluid that is discharged. The character of the fluor is also changed; it is now of a deep white, or yellowish colour, resembling thick cream that has stood some time.

'The system is almost always distinctly involved in this second stage; for if the pulse be carefully examined, it will be found hard, wiry, and irritated—in this stage, as in the former, the most scrupulous attention to cleanliness is recommended—I purge most commonly; confine the patient to a vegetable diet; and sometimes bleed—I am sure, that in every stage of fluor albus, time is always saved, as well as a material point gained, by a brisk catharsis in the commencement of the curative plan; it should therefore never be neglected. When the pulse is in a proper state to bear the tincture of cantharides, it is to be exhibited as above directed; subject to the same restrictions and distinctions, but with this difference, that we may commence advantageously in proper subjects with injections; but they should be of the sedative kind; a weak solution of the acetate of lead is perhaps the best; this may be used several times a day, preceded by the soap and water, as just mentioned.

'In the third stage, there is an aggravation of all the symptoms of the second; the discharge is of a greenish colour, and is frequently tinged with blood—I consider both the last forms but exalted degrees of the first; that is, the inflammation is greater in their numerical order; in the last, therefore, we have more to contend with than in the second; and more in the second than in

the first. It seems that this complaint, when neglected, is apt to
run spontaneously through all these changes, and is truly one of
the diseases which rarely cures itself. These changes are more
certain and strongly marked in women who are a little advanced
in life, than in younger subjects ; and especially with those who
have borne many children, and who are inattentive to cleanliness,
and in such also it is more difficult to remove.' pp. 243, 244.

Our limits oblige us to bring this article to a close, al-
though we leave much of the volume unnoticed. We shall
feel less regret at this, if, what we have offered our readers,
induce them to possess themselves of the work itself. The
pathology of midwifery occupies a good deal that remains,
and the author has already gone very faithfully over much
of the ground before, in his other works. We are happy to
find, that he has availed himself so much of the valuable
labours of Mr C. M. Clarke, and that his plates have been
copied into the work. We have already anticipated the
most pleasant labour of criticism, that of commendation, and
we take leave of the author, with wishing him the success
he deserves.

V.

*A practical Treatise on Poisons and Asphyxies, adapted to
general use. Followed by directions for the treatment of
Burns, and for the distinction of Real from Apparent
Death. By M. P.* Orfila, *&c. &c. &c. &c. &c. Trans-
lated from the French, with Notes and Additions, by
J. G.* Stevenson, *M.D. With an Appendix, containing
the Principles of Medical Jurisprudence, and Chemical
and Anatomical Considerations, addressed to Physicians.*
From the French. Boston : Hilliard, Gray, Little, and
Wilkins. 1826. pp. 230.

A work on the subjects of this volume, could hardly come
before the public with a better recommendation, than the
name of Orfila on its title page. Orfila has been long known

for his admirable treatise on toxicology.   This elaborate and
voluminous work makes the reader acquainted with the
learning of all former periods on the subject, down to the
time when Orfila wrote.   It contains also the results of his
own labours, and gives a minute account of the contempora-
neous writings.   This treatise relates to one subject of
legal medicine, and though a most important one, leaves a
vast deal unexplored.   To supply this deficiency, a later
work by the same author has appeared.*   This work is
now before us, and, from the examination we have given it,
we feel satisfied that it has added to the high reputation the
author had before enjoyed.

   A work, very similar in its purposes to that of Orfila now
under review, had appeared some years before in France, by
M. Antoine Portal.†   The deserved reputation of this au-
thor gave his work a wide circulation, and the knowledge of
his time was thus extensively and usefully diffused.   Orfila's
work is much later, and in this circumstance has an advan-
tage, and must be preferred to that of Portal.   Few subjects
have been more carefully investigated than those departments
of mineral, animal, and vegetable chemistry, which are re-
lated to toxicology.   This has been done within a very few
years, and the labour is still continued, and new accessions
almost daily made to these branches of chemical science.
This circumstance, other things being equal, gives the greater
interest to the later work.   The discoveries alluded to, re-
late to the effects of re-agents when employed for the pur-
pose of detecting particular poisons.   It might seem at first
sight, that the best test for a poison would be the best re-
medy for its deleterious effects, when taken into the sto-
mach.   This however is not universally true, since many of
the products of chemical affinity are in themselves poisonous.

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* Leçons de Médecine Légale, par M. Orfila.   Tom. iii.   à Paris.   1823.

   † Instruction sur le traitement des asphyxiés par les gaz méphitiques; des
noyés; des enfans qui paraissent morts en naissant; des personnes qui ont été
réduites à l'état d'asphyxie, par le froid et par le chaud; de celles qui ont été
mordues par des animaux enragés; de celles qui ont été empoisonnées : &c. &c.
Par Antoine Portal.   à Paris.

The treatment then is resolved into those means, which, in the surest and soonest way, expel the poisonous substance; which render it inert; or by its quantity or quality diminish or prevent its application either directly, or in a concentrated form, to the stomach. And these means are pretty well settled and understood. This, however, is not the case with regard to the best methods of detecting all poisons, and some of the most active too. Hence we are almost daily meeting in scientific journals, and more elaborate works, with substitutions for what may be now received, or new methods altogether. The treatment, however, being in any considerable measure settled, is an important fact, and the various methods should be extensively promulgated. It is this circumstance, which gives much value to this little volume of Orfila, and makes the labour of the American translator, Dr Stevenson, a very acceptable one to the profession. Further, the public are much benefited by such a work. It is of a class more likely to be useful to those out of the profession, than any other to which we can allude. The accidents for which it provides are so common, so likely to occur, and the indications for the most part so obvious, and the means for answering them so much within the reach of every one, that the greatest benefits may result from possessing a work, which, with great simplicity and directness, meets all these contingencies.

Dr Stevenson's is a translation from the latest Paris edition, and contains many valuable additions. A translation had been made of Orfila's work in England, by Mr. Black of London. This appeared in 1820, and was from the second edition, an earlier one than that used by Dr Stevenson. As Orfila's work had undergone a revision by the author, and received additions from him, Dr Stevenson's text must be regarded as the most perfect. His own additions also enhance the value of his work. Were not the name of Orfila a sufficient pledge for the character of his work, it might be added that his manuscript was submitted, in 1818, to a committee of the Society of the Faculty of Medicine of Paris, composed of M.M. Percy, Pinel, and Vauquelin, who made the following report :—

' " In designating the properties of the different poisons, M. Orfila has selected those which are most important, and most easily ascertained ; and of which one or two are frequently sufficient for the discovery of the poison."

' " The simple and accurate manner, in which M. Orfila has treated this interesting subject, renders the work still more useful."

' " This work of M. Orfila must become generally esteemed, as it is freed from scientific terms, and is reduced to precepts the most simple, yet sufficient to effect the object proposed."

' " It is to be wished that government would take the necessary measures to distribute it among all classes of society; and especially that it may be in the hands of *medical practitioners*, *the clergy*, and *municipal officers*, to whom, being often called upon to administer succour, the knowledge of the improvements which science has made of late years in the treatment of persons poisoned, or in a state of suspended animation, has become indispensable." '— *Preface*, p. 4.

It is not our purpose to make an analysis of this volume. We make a single extract, which will give the reader some notion of the whole work ; and when we add that the translation is very faithfully done, nothing more is necessary from us, than to give it, as we do, our hearty recommendation.

' *General Considerations on Poisoning.*—Before speaking of the treatment which is to be employed in each kind of poisoning, it will be useful to give a succinct history of its various symptoms, considered in a general way, and to fix some precepts relating to the aid which is to be extended to persons poisoned.

' *Symptoms of Poisoning considered in a general Manner.*—It may be suspected that an individual is poisoned, when a certain number of the symptoms about to be enumerated, are suddenly manifested in him. A nauseous and tainted smell ; a disagreeable, acid, alkaline, acrid, styptic, or bitter taste ; acrid heat in the fauces and stomach ; frothy mouth, or complete dryness of this cavity ; sense of constriction in the throat ; tongue and gums livid, yellow, white, red, or black ; pain more or less acute throughout the alimentary canal, and especially in the throat, region of the stomach, and some other parts of the belly ; this pain is very shifting, and is felt successively in all parts of the intestinal canal, and even in the

chest; fetid breath; frequent eructations; nausea; painful vomiting of mucous, bilious, or bloody matter of a white, yellow, green, blue, red, or brown colour, and producing various sensations in the mouth; sometimes this matter effervesces, or fumes, if ejected upon the hearth or a stone floor, and reddens the water of turnsol; sometimes it undergoes no action on the floor, in which case it changes the syrup of violets to a green; hiccough; costiveness, or alvine dejections more or less abundant, with or without tenesmus, various in colour and nature, like the matter that is vomited from the stomach; difficulty of breathing, distress; cough more or less severe; pulse frequent, small, contracted, irregular, often imperceptible, or strong and regular; a burning thirst, liquids sometimes aggravating the pain, and being soon rejected by vomiting; shiverings from time to time; the skin and lower limbs are as if frozen, though sometimes there is intense heat; painful eruption on the skin; cold and clammy sweats; difficulty in passing the water; urine in small quantity and hot.

‘ The countenance is not greatly altered at first; but soon the complexion becomes pale and livid; there is loss of sight and hearing; sometimes the eyes are red, and project out of their sockets; dilatation of the pupil; agitation, acute cries (screams), inability to sit and lie still; furious or gay delirium; convulsive motions of the muscles of the face, jaws, and extremities; sardonic laugh; the jaw stiff or locked; horrible contortions; the head often turned over upon the back; extreme rigidity of the limbs, accompanied by a general contraction of the muscles of the chest, rendering its walls immoveable. Sometimes there are stupor, numbness, heaviness of the head, and desire to sleep, which is at first slight, but afterwards insurmountable; dizziness; palsy and great weakness of the lower limbs; apoplectic state; extreme prostration of the strength; alteration of the voice; obstinate and painful priapism.

‘ Most frequently, when no proper aid is rendered, the symptoms above described go on increasing in severity from the moment of their appearance until death; cases, however, sometimes occur, in which these evils cease completely, and do not appear again till after a certain period; so that there is evidently a lucid interval, and it may be said that the poisoning is intermittent.

‘ If to these symptoms are added those which follow the bite or the sting of a venomous animal (to be described hereafter), an ex-

act idea will be formed of the various phenomena which may be observed during life in individuals labouring under the influence of poisonous substances, which have been introduced into the alimentary canal, or have been applied upon the ulcerated skin.

' *Treatment of persons poisoned.*—In the treatment of poisoning, *two stages* are to be distinguished. First; when much time has not elapsed since the poison was swallowed, and this is still in the intestinal canal, it is necessary to prevent its action, as far as is possible, by expelling it either upwards or downwards, or by *combining it with some substance which will neutralize its deleterious qualities :* this object being fulfilled, the symptoms which have been produced by the poison, must be counteracted by means which vary in different cases. Secondly; when the poison has been swallowed a long time, and copious vomitings and purgings announce that all the poisonous substance, which retains its activity, has been expelled, the life of the individual would be endangered, if processes for acting upon the poison should be persevered in ; and it is now necessary simply to oppose the progress of the disease by appropriate general means.

' *First stage.*—The individual poisoned must be relieved of the poisonous substance which has not yet acted ; for if it continues to exercise its action on the intestinal canal, the evils will be greatly aggravated, and the remedies employed will with difficulty produce their good effects. Now there are two ways to prevent the action of poisons upon the alimentary canal ; the first is to cause them to be rejected upwards or downwards ; the second consists in neutralizing them so that they can no longer act deleteriously upon the textures of the body.

' *Evacuants.*—Medicines employed in cases of poisoning for the purpose of producing vomiting, are of two kinds : one class consists of substances which have a real emetic power, such as tartar emetic [tartarized antimony], white vitriol [sulphate of zinc], etc. ; these are employed when the poisonous substance introduced into the stomach does not irritate it : the second class consists of aqueous, mucilaginous and emollient substances, which produce vomiting merely by distending the stomach and forcing it to contract ; these are employed in cases where the poisons are irritating, acrid, and corrosive, and where, consequently, it would be dangerous to

have recourse to violent emetics, which would increase the irritation of the stomach.

' *Counterpoisons, or antidotes.*—This name is given to substances capable of decomposing the liquid or solid poisons, or of combining with them at a temperature equal or inferior to that of the human body, and of forming a new product which does not exert any hurtful action on the animal system. These substances should be capable of being taken in large doses without danger; their action ought to be prompt, and independent of the presence of the gastric juice and the mucous and bilious fluids which the stomach may contain. The principal antidotes are, albumen [the white of egg], milk, light infusion of gallnuts, decoction of cinchona [Peruvian bark], very weak solutions of the sulphate of soda [Glauber's salt], or of magnesia, [Epsom salt], and of the hydrochlorate of soda [common salt], magnesia, and solution of soap in water.

' *Second stage.*—If the physician is called to the poisoned man a long time after the introduction of the poison into the alimentary canal, from which it is now entirely expelled by vomiting or purging, instead of making use of antidotes or of emetics, which in many cases might be injurious, he should examine the state of the individual with great attention, the nature of the symptoms which he exhibits, the organs which are affected primarily or secondarily, and the kind of poison to which the existing evils may be ascribed, and then proceed according to the indication that presents itself to be fulfilled. No general precepts will be given under this head, since the mode of treatment which is proper to be followed in one case, might in another be fatal.' pp. 8—14.

VI.

Typhus Syncopalis, Sinking Typhus, or the Spotted-Fever of New-England, as it appeared in the Epidemic of 1823, in Middletown, Connecticut. By Thomas Miner, M.D.   pp. 48.

This pamphlet contains a brief but clear and interesting account of a disease which has always excited great alarm

wherever it has appeared, and which has been very exten-
sive in the town referred to by the author, and the vicinity.
Dr Miner's opportunities for observing this disease have
been great.   He has seen it in his own town, and in the
neighbouring ones, and has had to contend with it in his
own house.   He has devoted himself to its study with fear-
less and unwearied patience, and has offered to the public
the results of what he has seen.   He regards this disease
as an *epidemic*, not an *endemic*.   It has no appreciable con-
nexion with climate, situation or season; although, like other
epidemics, it is modified by local causes, especially by com-
bination with other diseases.

   The pamphlet treats of the disease as it appeared in Mid-
dletown. This place has, however, not suffered alone. With-
in the last five years, East-Haddam, Haddam, Durham, Me-
riden, Wallingford, Southington, and Berlin, have been vi-
sited by the same epidemic.   It has in short shown itself
in almost every part of the state, though much more fre-
quently and severely on the west side of the Connecticut
river than on the east.   In order to give our readers some
account of this disease as described by Dr Miner, we have
preferred to use his own language.   We shall confine our-
selves very much to facts, leaving the unsettled questions
of causes, and especially the precise nature of the disease,
to be inferred by the reader :—

   ' Between the last of March, and the last of December 1823, two
of the physicians* had the care of more than a hundred and seven-
ty severe cases of Fever, in Middletown, Connecticut, which went
through their course, and required close and vigilant attendance.
They also had the charge of more than a hundred and eighty other
cases of the same sort, which, either from original mildness, or
prompt treatment, proved to be comparatively slight.   The latter
class of patients however, were so much indisposed, as to be una-
ble to attend to their ordinary business, for a period of one or two
weeks ; though, unlike the former, they were not entirely confined
to their beds for any considerable time.   Out of these cases, being

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* Dr Edward S. Cone and the author. The patients were principally Dr
Cone's, but were mostly visited by the author in consultation.

in the whole about three hundred and sixty, twelve died ; viz. six adults, and six children. One half of the mortality happened in November. In the succeeding month, the Epidemic terminated. Persons of all ages, from one year old to seventy, and of both sexes, were the subjects of the disease. It is perhaps needless to remark, that the following statement applies more particularly to the severer cases, unless the more moderate are distinctly mentioned.

There were two varieties of attack, the sudden and the insidious. The most sudden attacks were the soonest relieved, provided the patients had prompt and appropriate treatment ; and under such circumstances, the disease rarely exceeded five or seven days. In some of the severest cases, the disease arrived at its height on the third day, and under careful management, the patient appeared subsequently to be free from danger. Not one, this year, that was suddenly attacked, died ; the recovery, in most instances, being the evident consequence of the promptness and decision of the treatment, and of the necessity which both patients and attendants felt, of following prescriptions scrupulously.

' In the insidious cases, the subjects of the disease were affected with the symptoms about to be described, in a mild degree, for a greater or less length of time, and many seemed to labour under a kind of infatuation concerning the malady and existing danger, and were almost invariably inclined, for several days, to ascribe their indisposition to some other cause, than the prevailing epidemic ; and if, at the instigation of friends, a physician was called, they could not be induced, without the greatest difficulty, to follow any regular plan of treatment, till violent symptoms occurred, sometimes as early as the third or fifth day, or more commonly, as late as the seventh. A few insidious cases continued two or three weeks, before there was apparent danger.

' The whole number of deaths this year happened among the set of insidious cases. One of the adults died on the third day ; one, on the fifth ; one, on the ninth ; one, at the end of the second week ; one, at the end of the third week ; and one, on the fifth week. Besides, in one of these fatal cases, the disease was complicated, at first, with dysentery ; in one, with gout ; in one, with a chronic hepatic affection ; and two had hæmorrhage from the lungs. The other did not substantially vary from the common insidious

cases. Some of the children died at the end of a week; the others, at the end of a fortnight.' pp. 5, 6.

The following extracts give very minute statements of the prominent symptoms,—and, what is still more important, of the shades of difference, and modifications, under which they not unfrequently occurred :—

' In nearly every instance, whether severe or moderate, the disease began with more or less pain in the head, especially about the forehead. Vertigo was also a symptom almost universal. In some, a sudden faintness, dizziness, or sense of extreme exhaustion, so that the patient could neither sit nor stand upright, was the first symptom In others, the attack resembled a severe concussion of the brain, or a sudden stroke of palsy or apoplexy. Indeed, every thing seemed to show that the brain and nervous system were the primary seat of the disease.

' In almost every case, the skin was preternaturally cool, for several of the first days, and subsequently, in temperature, *it never exceeded the standard of health,* in more than three or four cases. Even after it had been warmed by internal and external heat, in conjunction with stimulants, it was ever liable to become *partially* cold, as about the thighs, knees, legs, arms, hands and feet. In the course of the disease, more especially in the worst cases, it was almost always so much benumbed, as to be insensible to an ordinary pinch or scratch, and while in this state, incapable of being affected by common sinapisms and blisters. This numbness was sometimes most prominent in one side, or even in one leg or arm. In the latter stage, however, there sometimes occurred periods of extreme susceptibility to the impression of rubefacients and epispastics ; but as a general rule, external applications, of ordinary strength, would produce very little effect, till something like reaction had been effected. Complete agues or rigors, this year, were very rare in any stage of the disease. Commonly, through the whole course of the disease, the surface, though not dry or husky, was seldom much inclined to spontaneous moisture. In a few instances, however, there was a morbid, drenching perspiration. Sometimes, though rarely, the patient would complain of a general sensation of heat, though, to the feel of the attendants, he would be actually cold. Is not the heat, which has been often said

to occur in some epidemics of this disease, either a transient flush, or the *calor mordax*, the stinging sensation merely, and not the actual augmentation of thermometrical temperature? If increased heat, and increased frequency of the pulse, are a part of the definition of fever, a great majority of the cases had no fever at all, but were merely an acute neurosis. At this day, however, it is well known, that these symptoms are often absent in irregular pyrexia.

' The countenance, in most of the severe cases, had a kind of leaden hue, with marks of anguish. In some, there were patches of a bright flush, intermingled with other patches that were preternaturally pale. In a few cases, the pupils of the eyes were contracted, and in a few, dilated. In some cases, the organs of sight and hearing were irritable in the extreme ; in others, they were equally torpid.

' There were two prominent varieties of the tongue, the contracted and pointed, and the dilated and flabby. The fur of the tongue assumed every possible deviation from health, and was of every conceivable variety, except that it never had the appearance which is usually found in synocha. In the course of the disease, red tongue was rather more frequent than any other. Two uncommon varieties of fur sometimes occurred, one of which was a greenish slime, and the other a mucus, varying in appearance, from moist brown sugar, to light coloured molasses. The former was rare ; the latter, more common. Most of these varieties of tongue were liable to sudden changes in the same patient. In some of the protracted cases, there were aphthæ. A black tongue seldom appeared, and two or three instances of it only were noticed. On the whole, the state of the tongue was of very little service in diagnosis, or prognosis. In general there was little or no thirst ; but sometimes it was urgent. In such cases, it was generally aggravated by cold water, and palliated or removed by a persevering use of aromatics or alcohol.

' The stomach, on the one hand, was usually as torpid and inactive as a leathern bag, so that in many instances, the patient would choose scalding hot liquids ; or on the other, it was irritable in the extreme.' pp. 7, 8.

' With the exception of the few cases that commenced with diarrhœa, cholera, or dysentery, the bowels were naturally torpid.

Ischury, from mere torpor of the bladder, was much more common, than in other low typhoid diseases. There was a profuse discharge of urine in a few cases.' p. 9.

' The mind was more or less affected in every severe case.' p. 10.

' In many of the severe cases, the patient on going to sleep, would fall into a state resembling Incubus, with difficult or partially suspended respiration, which would require his being awaked as often as once every five minutes; and some could not be allowed to sleep longer at one time for several days, without their spontaneously waking in the most excruciating fright and distress, and finding themselves greatly exhausted.

' During the progress of the epidemic, every variety of pulse occurred, except the *strong* and *hard*, and this often in the same patient. In many of the mild cases, and in most of the others, till the period of fatal sinking, it was rarely so frequent as in health; but towards the close of life, in several of the fatal cases, it was a hundred and twenty or thirty, and occasionally, a hundred and sixty in a minute. In less than twelve hours, it would sometimes vary in frequency from forty, to a hundred and thirty. In one instance, it was as slow as twenty-seven beats in a minute, and in six or eight hours varied to a hundred and thirty. This patient recovered so rapidly, that he was able to ride out in a week from his first attack. After the disease was fairly formed, whether it was moderate or severe, an erect or sitting posture would almost uniformly accelerate the pulse forty or fifty beats in a minute, and sometimes double its frequency, besides producing considerable irregularity. In a very few cases, the pulse was a hundred and twenty at the very first attack. The pulse alone, (as is the case with the tongue,) is a very deceptive guide in this fever. At various times in the course of this disease, and even in the dying, it would occasionally give a delusive feel of fulness and force, that often deceived the very best judges respecting the danger, unless attention was particularly directed to other symptoms. In such circumstances, in former epidemics, bleeding has been seriously proposed by a counsellor, while the attending physician knew the patient to be actually *in articulo mortis.* In other epidemics, in which this disease was mistaken for active inflammation of the brain, or for apoplexy, when the patient has been bled, death has

ensued before the ligature could be taken from the arm. In most of the worst cases, the circulation was daily so languid by turns, that the extremities had a livid appearance, and were often near-ly pulseless. One patient at least recovered, that was without pulse at the wrist for several hours. Some of the fatal cases were attended with a very distressing palpitation of the heart.

‘ A very prominent symptom, which occurred in some degree in almost every instance, even of the mild cases, and probably with-out an exception in all the severe, and happened in every stage, sometimes constituting the first access of the disease, consisted of paroxysms of *subsidentia*, or a death-like *sinking* sensation in the epigastrium, that was described, sometimes as extreme distress, sometimes as a painful sense of vacuity and faintness, sometimes as trembling or fluttering, sometimes as real pain and anguish, and at others, was declared to be utterly indescribable. During the ex-istence of these paroxysms, the coolness and numbness of the skin, the lividness of the extremities, the feebleness of the pulse, and the indications of distress in the countenance, were much augment-ed. Sometimes, these paroxysms of sinking, were attended with palpitation, and often with spasms ; though spasms, tremors and subsultus were not uncommon in every stage. In the mild cases, these paroxysms of sinking, occurred *regularly* in the morning ; but in the severest, they were not confined to any particular hour of the day. Singultus was extremely rare, as also was indurated, in-flated, or tympanitic abdomen.

‘ In many of those cases which were neglected, or treated with evacuants, or in which the early symptoms were not decisively and fully met and subdued by appropriate remedies, a peculiar and somewhat different, and usually irreparable sinking and exhaustion occurred, *after a critical effort*, or in lieu of a crisis, on the third, fifth, or more commonly, on the seventh day. In a few cases, it did not occur till the end of the second or third week. Under such circumstances, in addition to the sinking in common with other cases, the respiration was interrupted and peculiar, and much re-sembled that of the dying, or rather that of animals (as it is de-scribed) after a division of the *Par Vagum*, the inspirations occur-ring only at intervals of several seconds, and being usually long and full, while the expirations were so short, that the breath was

parted with instantaneously. This *critical* sinking, in combination
with morbid respiration, was often the first warning of danger to
the patients and attendants, in the insidious cases, and it was al-
most invariably irremediable ; for, although every symptom could
be met, for a time, to the full extent, and although the most de-
cided operative effects of medicine could be produced, and life of-
ten be prolonged for days, yet the weight of the disease could
rarely be lessened, and, in one of the succeeding critical efforts,
the same symptoms would almost inevitably prove fatal. In other
fatal cases, the disease terminated in a deadly coma. Paroxysms
of coma were periodical in some instances, as were those of sink-
ing in others. The former description of sinking and anxiety,
which was principally referred to the epigastrium, in distinction
from the *critical*, may be termed *ordinary* sinking. It was usually
relieved when taken in season, and treated with energy.

  ' Hæmorrhages were rare in this disease ; but when they did oc-
cur, they were mostly fatal.'   pp. 11—13.

Following the description of the disease, is an account of
the treatment which the author has found most salutary. It
does not differ materially from the course adopted by many
practitioners in the interior of this state, who, not many
years ago had to contend with this very formidable disease.
It will not have been forgotten by those who were noticing
the interesting occurrences in the profession at the period
referred to, particularly as far as the ' spotted fever' was
concerned, that some difference of opinion existed respecting
its treatment. While some relied on stimulants from the
first, others either began with, or occasionally interposed
evacuants. It is not our purpose, however, at this moment,
to go into a discussion of the comparative merits of these
methods, or to give in detail the course pursued by Dr Mi-
ner. It seems to have been his steady purpose to meet the
indications in individual cases, rather than to apply particular
remedies to all cases because they had been useful in one.
Thus we find emetic and cathartic medicines at times given
where the indications demanded them, and along with or
without stimulants, as circumstances required. We ex-
press our obligations to Dr Miner, for giving us in so few

pages so much valuable description, and close this article with the following case, the first which occurs in the ' Addenda.'

' Case of Mrs. C—— B——, Ætat. 25.

' This patient, from some cause or other, was habitually costive, seldom having a discharge from the bowels oftener than once a week. Previous to her attack in the present instance, nothing had passed the bowels for five days, during which time, she was engaged in attendance upon a sick sister, whose case proved fatal. Most of this time, she sat up during the night. For the last two days, she was unquestionably in a state of predisposition, as she complained of loss of appetite, languor, indisposition for exertion, vertigo, and various other symptoms usually called hysterical, such as quick transition from laughing to crying, without adequate cause, etc.

' *July* 6*th*, 1825. About 8 o'clock, A.M. while collecting vegetables in the garden, she was suddenly seized with extreme vertigo, complete blindness and deafness, with great distress and faintness referred to the epigastric region, upon which she immediately fell to the ground, in a state very near to perfect insensibility. On being carried into the house, the surface was observed to be very cold and pale, and there were the strongest marks of distress in the countenance. The bystanders immediately applied tincture of camphor to the face, and smart friction was made, both with the hand and flannel, to the back and extremities. Under this treatment she soon recovered from her insensibility, but was at the same time, seized with a most excruciating pain in the loins, and the lower part of the abdomen. This was so extreme, that she incessantly cried out for opium; and when some of the tincture was obtained, she would not wait for it to be dropped or measured, but insisted upon taking instantly, and unmixed, a quantity, which to the judgment of the attendants, must have been about half a fluid ounce. Her customary physician being absent, and some miles distant with other patients, she waited, without medical aid, about an hour after taking this dose, but as it made no sensible impression, and there was no relief, but indeed rather a gradual augmentation of the pain and distress, she requested that another practitioner should be called in. On his arrival, he directed an

enema of nearly four fluid drams of tincture of opium, in a little
warm water, together with the application of strong sinapisms to
the bowels, and horse-radish leaves dipped in hot water to the ex-
tremities. After waiting another hour without any perceptible
mitigation of the pain, and the physician who had already visited
her being engaged professionally elsewhere, another was now
called. This gentleman supposed all the symptoms which had
thus far occurred, were the mere result of a sudden *prolapsus uteri*,
and under this notion, he very strongly disapproved of the mea-
sures that had been taken, and on the score of the opium particu-
larly, he excited considerable agitation and anxiety, both of the
patient, and the bystanders. According to his views (as subse-
quently stated) the introduction of a pessary was to be the most im-
portant means of relief. Notwithstanding this opinion however,
he prescribed twelve drops of tincture of opium, every four hours,
and twenty of spirit of ammonia every two hours, and departed.
In another hour, the customary family physician arrived. At this
time, according to the statements of the patient and attendants,
there was still very little mitigation of the pain. The pulse was
quick and gaseous, (or in other words, soft and weak, with con-
siderable apparent fulness,) and as infrequent as fifty-five in a mi-
nute. The temperature, though declared not to be near so low as
it had been, still fell considerably short of the natural standard.
The countenance was motley, being principally very pale, but
with a few livid patches; the lips were livid; the tongue was
much contracted and pointed, and its surface was shrivelled, and
somewhat redder than natural. There was no thirst, though the
patient lay with the mouth open. The respiration was hurried
and laborious, and resembled that of a person who had just been
making violent bodily exertion. Another enema of half a fluid
ounce of tincture of opium in a little warm water, was immediately
administered, and three grains of opium, in conjunction with half a
fluid ounce of spirit, and the same quantity of hot water, were
taken into the stomach. As the external applications had pro-
duced no apparent effect, the mustard was removed from the abdo-
men, and a plaster of the cerate of lytta (of the P. U. S. A.) of at
least forty-eight inches surface, was applied in its stead, and horse-
radish leaves dipped in hot water, were renewedly applied to the
whole extremities. Two grains of opium in pill were directed to

be taken every two hours subsequently, and a hot mixture of one part spirit and two parts water, was advised *ad libitum*.   About 3 o'clock P M. the patient had become much easier, but still was not entirely free from pain.   The frequency of the pulse was a little increased, but still it was preternaturally slow, being about sixty in a minute ; the temperature was restored to near the natural stand-ard, and the whole surface was thickly sprinkled over, with dark-coloured petecchiæ; the respiration was less laborious, but was still unnatural.   There was no change in the tongue, but the pa-tient had once vomited a small quantity of a transparent liquid, of a light grass-green colour.   A slight degree of talkative delirium had taken place, and on inquiry, a considerable sense of faintness and distress was complained of, at the stomach.   An epispastic was now applied to the forehead, and another large one, between the shoulders ; and in addition to what the patient was already taking internally, a mixture of ten minims of the liquor of the arsenite of potassa, and forty of the tincture of opium, was directed at every intermediate hour between the pills.   The horse-radish leaves were again renewed to the extremities.   The epispastic upon the abdomen had not yet produced any perceptible effect.   During the evening, rubefacient effects began to be produced, by all the ex-ternal applications ; but with the exception of a considerable itch-ing of the surface, there was no appreciable change of symptoms. The medication heretofore specified, was directed to be continued through the night.

   ‘ *July 7th.*   This morning the patient was found free from pain, and perfectly rational.   The pulse remained stationary, the surface was of a natural temperature, the petecchiæ of a florid colour, the tongue was dilated and flabby, with the upper surface covered with a loose, slimy, dirty fur, and the edges and under surface livid ; there was no thirst, and no irritability of the stomach, but still a great sense of distress and sinking was complained of in the epigastric region, which was uniformly aggravated by the slightest motion of the head.

   ‘ At this time, both sides of the head were shaved, and large epispastics were applied, and likewise another epispastic, over the stomach.   The same internal medication, that was directed the night previous, was continued, with the variation only of assigning a regular period for the administration of the spirit, of which a

table-spoonful of a mixture one part spirit, and two parts of bread-water, was directed to be given every intermediate fifteen minutes, between the doses of the other medicines. During this day, and the succeeding night, the symptoms were kept pretty well at bay by this course, except that the patient vomited twice toward morning.

'*July 8th.* The patient tolerably comfortable. An epispastic was applied to each wrist. Both the day and the night passed in a pretty uniform state.

'*July 9th.* This morning, the symptoms still pretty much at a stand. The patient and her friends were now solicitous to have a discharge from the bowels, and though the abdomen was perfectly soft, and equally free, both from distension and uneasiness, yet the physician yielded to their solicitations, and permitted a laxative enema of decoction of tansey with common salt and molasses, to be employed. In about an hour this came away, but with only a slight discharge of fœcal matter. Epispastics were at this time applied to the ancles, but in other respects, the same medication as heretofore was continued.

'*July 10th.* This day the symptoms continued stationary, till the latter part of the night; and consequently, the medication was unchanged.

'*July 11th.* The fifth day of the disease. This morning the pulse was found much more frequent, being a little upwards of a hundred in a minute. The skin was again considerably cooler, and the fur of the tongue was loose. There was distressing singultus, and rejection of every liquid taken into the stomach.

'At this time, as this change was considered as a critical effort, all medicine was discontinued, except a pill consisting of two grains of opium, every two hours. Common tea, and simple chicken-broth, very hot, were allowed often, in tea-spoonful doses, and the patient was enjoined to refrain as far as possible from all talking, and all motion, particularly of the head, as moving this part had hitherto invariably occasioned faintness, sickness, and sinking at the stomach. Under this course, a considerable improvement of all the symptoms was found at 7 o'clock P.M., the pulse was less frequent and more full, the skin was warmer, the tongue was clear from fur, though quite red, the singultus and vomiting were gone, and the patient had had some quiet and refreshing sleep. The night passed tolerably well under the same course.

' *July 12th.* To all appearance, the patient was now pretty free from disease. The interval between the pills was protracted to three hours ; and two fluid drams of the compound tincture of cinchona, were directed every two hours. Improvement continued through the day and night. Toward morning, there was some manifestation of returning appetite, and food sat well. Milk-porridge was allowed, with crackers soaked in tea, coffee, or brandy and water, and likewise a little cod-fish, soaked soft and picked fine.

' *July 13th.* Symptoms nearly stationary. A laxative enema, prepared as the previous one had been, was now employed. This soon operated twice pretty freely, and occasioned considerable faintness, and increased weakness. On this account, an extra pill of two grains of opium was given. The regular pills and tincture were continued as the day before. This day and night, on the whole, passed tolerably well.

' *July 14th.* The interval between the pills, was this day lengthened to four hours. The tincture was continued as usual. The patient was now able to take sufficient food, and to sit up in bed. Passed the whole twenty-four hours well.

' *July 15th.* Still improving. Took only four of the pills, this day.

' *July 16th.* The patient now able to walk about her room. Discontinued both the opium and the compound tincture of cinchona, and in their place substituted a tea-spoonful of an aromatic tincture of gentian, in a glass of wine, every four hours. During convalescence, a great number of minute carbuncles made their appearance, which did not disappear entirely, under about a fortnight.*

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* This patient had an attack of the same disease, in March 1825, equally severe, which yielded to similar treatment.

VII.

*A Synopsis of the Diseases of the Eye, and their treat-
ment; to which are prefixed a short anatomical descrip-
tion, and a sketch of the Physiology of that organ.*
By Benjamin Travers, F.R.S. Surgeon to St Thomas's
Hospital.   London.   1821.   pp. 462.

This volume has been, perhaps, almost too long before the
public for it to be made the subject of criticism; but so va-
luable are its contents, that we deem no apology necessary
for presenting a part of them to our readers in the form of
an analysis.   In doing this, we shall notice only such of the
subjects treated of, as are of interest to the general practi-
tioner; presuming that no surgeon, who devotes himself to
the treatment of those ophthalmic diseases which require
operations, would be contented unless he possessed the en-
tire work in his own hands.

The consideration of the treatment of the diseases of the
eye is preceded by an account of its anatomy and physiology,
and of its pathology.   The essay upon the latter subject,
particularly that part of it which relates to diseases of the
retina, is very full and valuable, but we have no time to
notice it, except so far as reference to it may be necessary,
in order to illustrate some circumstances in the treatment.

Simple inflammation of the conjunctiva, or the disease
commonly known by the name of ophthalmia, does not re-
quire any particular description, the symptoms being familiar
to every practitioner.   When it has not been produced by
any injury of the organ, is not dependent upon any establish-
ed disorder of the system, nor modified by a scrofulous dia-
thesis, it is easily subdued by the loss of a few ounces of
blood, and a brisk purgative treatment.   If febrile excite-
ment attend, which rarely happens, the same means com-
bined with repose, soothing applications, diaphoretic diluents,
and a light diet, are sufficient for its removal.

General bleeding is not always necessary.   Sometimes
there are decided objections to its use, the importance of

which can only be appreciated as they arise, by the practitioner; such, for instance, as arise from the state of the general health, or the habit of the patient. Still, in these cases, local bleeding may be necessary to remove the loaded state of the vessels; and of the modes of local bleeding, Mr Travers gives a decided preference to cupping. There are, however, some cases in which bleeding, both from the system and from the part is indispensable. Bleeding from the angular vein and scarification of the conjunctiva, as well as cupping and leeching, may be employed as local evacuants. Scarification, though highly useful in the chronic stage, particularly in the thickened and highly vascular state of the conjunctiva of the eyelids, is, in most cases, objectionable in the active stage.

Medicated lotions seem to have little or no value, but warm and cold baths are of unequivocal service under the proper circumstances for their application. The application of a cold bath, in the acute stage of inflammation gives relief at the moment of its application, yet it is generally followed by an increase of the heat and pain. But when this stage is on the decline, and the acuteness of the inflammation and of the sensibility have subsided, cold has a salutary influence as a tonic application. In the first stage, then, tepid baths are preferable, and, upon the whole, no application is better than simple warm water in the painfully acute stage of inflammation. Even the weakest medicated lotions irritate, and none more than that which is esteemed most sedative, a solution of opium. The same happens, with respect to some painful herpetic eruptions and acutely irritable ulcers, which are irritated by opium, but quieted by a solution of lunar caustic. There are some exceptions, in which the solution of opium and the vapour of laudanum, are productive of great benefit; the latter, particularly by alleviating the irritability to light, which is characteristic of strumous ophthalmia.

During the acute stage, the edges of the tarsi may be smeared with some cetaceous ointment, or cold cream, at bed-time; and, as it subsides, the ointment of tutty or lead,

or the ointment of nitrate of quicksilver much diluted, should
be substituted.   Neither should the tepid baths, however
preferable to the cold in the first stage, be continued after
the extreme fullness of the vessels, and the excessively sen-
sibility, have been diminished.   Cold, and slightly astrin-
gent lotions, such as solutions of alum and zinc, should be
substituted.

The conjunctiva in inflammation sometimes exhibits a
species of fulness, which is called œdematous ophthalmia ; it
is significant of feeble action, and has been regarded as ery-
sipelatous.   It is often accompanied by symptoms of disor-
der of the stomach and liver, and is relieved by the solution
of tartar emetic, given at short intervals.

Inflammation sometimes assumes a chronic character from its
commencement.   In these cases there is little pain, the dis-
ease is of little extent, and indeed exhibits scarce any symptom
except the congestion of the vessels.   These are the cases,
the cure of which has given such a strange celebrity to
many applications, particularly among the vulgar.   A single
stimulus will often restore the healthy action at once.   The
vinum opii has acquired much importance from its success in
such cases.   The same effects would be brought about by
the solution of sulphate of zinc or nitrate of silver, or by the
citrine ointment.   ' Some old women use their urine with
admirable effect in these cases.'

There are certain habits and states of system, in which
ophthalmia, from whatever cause arising, assumes the cha-
racter of irritation ; it is not relieved by bleeding, purg-
ing, and blistering, but when these remedies are persevered
in too long, is made worse by them.   The irritability in-
creases as the strength fails.   These are cases, in which
opium so combined, with calomel, antimony, or ipecacuanha,
as to modify its tendency to check the secretions, becomes
eminently successful.

The main object in the treatment of simple acute ophthal-
mia, is to ensure the soundness of the cornea ; the most serious
injury to be apprehended, is some permanent defect in this
important membrane.   Its state, therefore, is to be most

carefully watched ; and wherever the conjunctiva, covering the sclerotic, is much raised, where the surface of the cornea has in any degree lost its polish, and more particularly when an effusion of lymph has taken place in, or upon it, so as to obscure vision, the anti-inflammatory measures, viz. blood-letting, blisters, calomel, antimony, and the neutral salts, are to be most vigorously put in operation.

Simple inflammation does not often become chronic. When it does, blisters, issues, setons, the astringent washes, tonics, and particularly pure air and exercise, are the appropriate remedies. A red and thickened state of the conjunctiva at the margins of the lids, is a frequent consequence of it. Scarifications, and the diluted mercurial ointments, are of advantage ; but where greasy applications irritate, as they do in many persons, stimulant washes are to be substituted.

Inflammation of the conjunctiva is often modified by scrophula. This is not characterized by any peculiar local appearance of the inflamed part, but by the disproportionate degree of intolerance of light. It is often combined with the presence of aphthæ of the conjunctiva, and with an inflammation of the Meibomian follicles, producing a suppurative discharge. These cases are almost always of an atonic character, and are generally constitutional in their origin. Children are particularly the subjects of them, who have been liable from infancy to glandular enlargements, chilblains, cutaneous eruptions and chaps, psoriasis, tinea, and porrigo. Improper food, depraved digestion, want of cleanliness, all contribute to them. It is more difficult to prevent the recurrence of the attacks of these diseases than to remove them. Principally, however, because the same pains which persons will take to cure a complaint in themselves or their children, they will not take to prevent it.

They have a strong tendency when they have once attacked an organ to become chronic. They come slowly and so depart. They are not favourably affected by violent means ; but on the other hand, are injured by them if long continued. There may be cases of a sthenic character, requiring the high antiphlogistic treatment. But, in general,

blood-letting, rough and depressing purgatives, and warm applications, are injurious. Blisters, kept open as long as they do not irritate the sytem, issues and setons, are of great use. The principle upon which the treatment is to be regulated, is to lessen the irritability without materially depressing the power of the system; and no circumstance is to be more carefully observed, than the arrangement of the vessels at the verge of the cornea, and the condition of that membrane itself, as indicating the importance of and consequences to be apprehended from the disease. Mr Travers gives the following synoptical sketch of the treatment for each form under which the disease may present itself:—

'1. *Strumous inflammation without change of texture, vascularity more or less, intolerance excessive.*—Calomel and opium, or hydr. c. cretâ and Dover's powder at night; emetic tartar to nausea; gentle alvine evacuants; diaphoretic drinks; large open blister on the nape of the neck; leeches; tepid bath; tepid or cold water washes, as most agreeable; vapour of opium; large bonnet shade; no bandages;* spacious airy apartments and light bed clothing.

'2. *With recent diffused opacity of corneal conjunctiva, and vessels raised upon and over-shooting the corneal margin.*—Calomel and antimony, or opium, or any other more appropriate exhibition of mercury, to ptyalism; occasional purgatives; leeches; blisters alternated behind the ears and on the nape of the neck and temples.

'3. *With herpetic ulcers of the cornea.*—The same; blisters on the temples; as the inflammation yields, sol. argent. nitrat. : vin. opii : sol. cup. sulph. : dilute zinc lotion.

'4. *With pustules.*—If partial, weak zinc or alum lotion; ung. hydr. nitr.; occasional brisk purgatives; infusion of roses with additional acid; tonic bitters; calumba, gentian, &c.; blisters behind the ears, repeated if necessary. If the vascularity is diffused by the multiplication of pustules or the duration of inflammation with irritability to light; treatment as in strumous inflammation without breach. Ung. zinci. et sub-acet. plumbi.

'5. *With inflammation of the follicles and puriform discharge.*—

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* Close bandages, I would observe, are always prejudicial. They create a morbid sensibility where it had not before existed, and greatly add to it when present.

Active measures at first, but not long continued. Blisters, when becoming chronic, with thickened lids, scarifications; zinc, alum, or copper wash, dilute; ung. hydr. nitr.: hydr. nitr. oxid.: sub-acet. cupri: tonics and sedatives. If obstinate, issue or seton.

' 6. *Convalescent state.*—Infusion of roses; cascarilla; calumba; decoction of bark, with dilute sulphuric or nitric acid; steel: rhu-barb and soda, or magnesia, as aperients. Tonic collyria and gently stimulant ointments; nutritive diet; country air; shower or sea bath in the warm months.' pp. 266—268.

The acute suppurative inflammation of the conjunctiva, is one of the most dangerous and troublesome disorders to which this membrane is subject. This is a very different affection from the inflammation of the Meibomian follicles, with which it has been often confounded. The conjunctiva, according to our author, is in health a non-secreting sur-face; the change therefore which takes place in this disease consists in the formation of a new surface, and the stages which it goes through in its regular course are three; the account of which we shall give in the words of Mr Tra-vers :—

' 1st. Serous effusion (œdema) which is common to other inflam-mations, and especially those of a less vigorous kind. 2d. Effusion of lymph (chemosis) peculiar to this form of inflammation, by which it acquires a solid augmentation of bulk. 3d. Villosity, or a subse-quent prolongation of the extreme vessels in the form of villi, which secrete pus. The strict adhesion of the conjunctiva to the cornea prevents these changes from taking place upon that mem-brane. Upon the tarsi the conjunctiva thus affected becomes pre-ternaturally vascular, thickened and scabrous, or forms fleshy emi-nences. That the vascular villi of the conjunctiva secrete pus, may be ascertained by the aid of a lens. The pus, when formed, collects in the interstices of the villous texture.' p. 96.

This sometimes exists in a milder form, its severity being expended chiefly upon the conjunctiva lining the eyelids, the membrane upon the globe being simply swelled giving to it a more rounded figure.

The suppurative ophthalmia occurs most frequently in children under three months old, and is often communicated

by the mother when she is the subject of fluor albus or gonorrhea. It is readily communicated by actual contact. It occurs from the accidental translation of the matter of gonorrhea to the eye, either by the person afflicted with it to his own eye, or to that of another—as from the husband to his wife. It is conveyed by a sponge which has been used to wash the diseased eye. By the spirting of the fluid injected into the eye of the patient into that of his surgeon. It runs through armies, schools and families, and there is reason to believe that it is epidemic as well as contagious.

In this, as in all the inflammations of the conjunctiva, the preservation of the cornea is the principal point to be regarded ; and we are to measure our practice by the danger with which it is threatened. In the mild form, unless the disease be neglected or exasperated by stimulants, the cornea is safe. The worst result is a slight haze of the cornea. While we can see the cornea and know that it is clear and bright, all is safe. The remedies in the mild form differ rather in degree than in kind from those which will be described as proper in the very severe cases. Topical bleeding ; blisters ; emollient fomentations in the beginning, followed by the injection of an alum solution when the acute stage has passed ; and simple purging with abstinence, form the principal measures. When the disease is on the decline, the discharge becoming thinner and the conjunctiva pale and flaccid, tonics, especially the extract of bark, and acids, do much good. The liquor plumbi acetatis may also be advantageously employed.

The acute suppurative inflammation, in its most exquisite form is sudden in its attack, and accompanied by most severe darting pains ; the upper lid in a few hours becomes so much swelled by the infiltration of its cellular tissue, as to hang down over the cheek. The conjunctiva is thickened, and overhangs the cornea, the surface of which is dusky. The system is sympathetically affected. The first remedy is full bleeding. The relief from this is immediate, and often very great ; but not always permanent. The worst cases require repeated bleedings, which should be followed up by

brisk purging, and the administration of tartar emetic in such doses and at such intervals as to keep up a state of nausea, perspiration and faintness. When the inflammation subsides, the future prospects of the patient depend entirely upon the state in which it has left the cornea. If it retain its tone and brightness, all will be well—and the tonic course, combined with cooling astringent lotions to the organ, will complete the cure. But if, when the patient, exhausted by the course which has been necessary to reduce the inflammation, exhibits, when the swelling of the parts has subsided, a lack-lustre and raggedness of the surface of the cornea, as if it had been immersed in an acid, or a grey patch in its centre, or a line encircling or half encircling its base, assuming a similar appearance, the portion so marked out will slough, unless the powers be so rallied, as to set up an adhesive action and preserve the parts that remain transparent in situ.

This appearance of the cornea is to be carefully distinguished, though it is not always done, from a nebulous state of it, which is one of the first changes it undergoes in this disease ; this nebulosity is merely the deposition of adhesive matter ; and if the inflammation be subdued in season, it is removed by absorption, like the same deposition in any other part, and the cornea regains its transparency. It is a great and fatal error in practice, to mistake this nebulosity, thus occurring in the acutest period, for the sign of approaching gangrene, which happens only at the turning or declining period of the disease. For it might lead to the relinquishment of active measures at the very moment they are most urgently needed. An error in the pathology of equal importance, is to regard the discharge as the disease, and to ascribe the destruction of the cornea to its corroding quality, whereas the discharge is but a single symptom among many, and is by no means a measure of the degree of severity of the case. The practice resulting from this error, viz. the application of strong stimulating and astringent injections at first, is not only to be deprecated as taking the place of more important measures, but as absolutely injurious in itself.

But, although highly recommending the vigorous depleting

treatment of the severest cases of this kind, Mr Travers does
not close his eyes, as too many of the thorough-going prac-
titioners of the day have done, to the possible bad conse-
quences of the treatment upon the constitution of the patient,
or even upon the organ itself.   We quote his remarks :—

  ' In closing my observations on the treatment of inflammation of
this organ, I shall take the liberty of making one or two general
remarks.   When inflammations in their nature destructive are ar-
rested by the vigor of the means employed, the system stands in
great need of the power thus lost for its recovery ; to restore parts
partially injured, and to supply the place of those which are de-
stroyed.   We see this fact exemplified in many instances both of
disease and injury.   A patient labouring under pneumonia is re-
lieved, by excessive bleedings, of his attack, and dies a month
afterwards of dropsy.   A person threatened with apoplexy, who
by the advice of his physicians is cupped once a month, soon falls
a victim to erysipelas.

  ' If much blood is lost in severe injuries, especially of aged peo-
ple, the healing powers are prostrate, and gangrene ensues.   I
mention this as a caution against that inconsiderate detraction of
blood (and it applies as forcibly to the abuse of mercury) which
proceeds without proportioning the quantity to the absolute neces-
sity of the case, and, secondly, without balancing the effect upon
the system at large against the importance of the organ.   When I
hear, as I often have heard, of sixty and seventy ounces of blood
taken at one time for an ophthalmia, and this followed by repeated
smaller bleedings, I must protest against the necessity of such a
practice, and say with Falstaff, " the better part of valor is discre-
tion." '—pp. 274, 275.

  There are several secondary affections of the conjunctiva,
which are the consequences of the disease last described ;
thus, it is sometimes left in a granular state around the tarsi.
This is accompanied by a gleety discharge, irritability to
light, drooping of the upper lid, a pricking sensation as of
sand in the eye, a preternaturally irritable and vascular state
of conjunctiva covering the sclerotic, and frequently by opa-
cities of the cornea.   The granulated projections should, in
this case, be shaved off close with the lancet or the scissors.

The sulphate of copper, or the lunar caustic, is often useful in preventing a second growth of the granulations. When with the opacity of the cornea, there are vessels ramifying in its covering conjunctiva, the remedy consists in making a complete division of the membrane, near the edge of the cornea, so as to cut off the supply of blood sent over its surface. In bad cases, this operation requires to be several times performed. After this has been done, and the granulations have been cut off as above directed, a solution of sulphate of copper should be injected between the eyelids, or a few drops of the liquid subacetate of lead, or of the thebaic tincture, may be dropt into the eye.

There are several other consequences of inflammation of the conjunctiva ; there may be folds and flap-like elongations of this membrane, which crowd the space between the globe and the lids, and prevent the eye from being more than half opened ; the conjunctiva may become fungous and indurated ; it may form a tumour, where it passes from the lid to the globe. Such cases frequently arise from blows and injuries. They are to be cured by simple excision.

The pannus is a chronic thickening and opacity of the conjunctiva of the sclerotic, generally unaccompanied by inflammation. It sometimes becomes redundant in extent, and forms folds or duplicatures, on one, or on all sides of the cornea, which encroach upon it considerably in the motions of the globe. The disease called pterygium is either membranous or fleshy. The membranous is a true nebula of the conjunctiva covering the sclerotic. The fleshy is an adipose or sarcomatous growth beneath it. It extends generally, though not always from behind the caruncula lachrymalis and extending towards the cornea, forcibly detaches from it the conjunctiva which covers it. In its progress the conjunctiva becomes thickened, and lymph is deposited between it and the cornea, so as to produce a permanent and incurable opacity.

In general, these diseases are to be cured by excision. Where, however, the pterygium is stationary, and does not threaten to interfere with the vision, it is best let alone.

When it is encroaching upon the sight, it should not be removed in its whole extent, as is sometimes recommended. When the excision is carried down to the caruncula, from which the morbid growth proceeds, lymph is deposited in the course of the cut parts, and the cicatrix uniting with the caruncula, forms a frenum, which prevents the motion of the eye. The pterygium, therefore, should be raised by dissection as near as possible to the margin of the cornea, and the relaxed portion of the membrane removed by an incision midway between the base of the pterygium and the cornea, and concentric with that membrane. If the disease has already made some progress upon the cornea, that part of it is not to be interfered with.

The diseases of the cornea are some of the most important of those affecting this organ, which the general practitioner is called upon to treat, as they so directly affect the vision, and cannot be always referred to the professed occulist, but must often be met by the surgeon in immediate attendance. Inflammation, in its usual sense, can hardly be predicated of the cornea, when that term is restricted to the lamellæ of horny substance of which it principally consists. It is liable, however, to adhesive inflammation, or inflammation attended by the deposition of lymph, to ulceration and to sloughing. It rarely suppurates. Ulcers of the cornea do not begin with abscess, but with a circumscribed deposit of lymph or a pure ulcerative absorption without pus, which sometimes takes place between the lamellæ forming an interstitial ulcer. Sometimes the ulcer is filled by an inspissated mucus, or a little dirty white slough, which may be washed out, leaving a clear surface. While the ulceration is going on, there are no red vessels to be seen. But, during the organizing or restorative process they often make their appearance, passing from the conjunctiva across the cornea, and accompanied along their course by a narrow and very delicate substratum of recent lymph along their track.

Coloured vessels upon the conjunctiva, covering the cornea, may be owing to either of these circumstances. 1. To an inflammation, excited by an ulcer of the cornea. 2. To

the duration of an acute strumous ophthalmia, in which the
serous vessels of the cornea are opened to red blood upon its
entire circumference, in the form of radii converging to a
centre, to an equal extent of from one to two lines.   In this
case the cornea is more or less obscured.   3. To a state of
chronic inflammation, in which straggling solitary vessels,
having a varicose appearance, run to one or more specks, or
proceeding from opposite sides of the sclerotic conjunctiva,
course over the opaque cornea, and freely anastomose upon it.

   The superficial ulcer of the cornea, the mode of whose
formation was just alluded to, is often accompanied by inflam-
mation and pain, which require general remedies.   When the
sclerotic is much inflamed, it is best to affect the system with
mercury.   The best local treatment is to touch the ulcer with
lunar caustic.   The indolent and deep sloughing ulcer is to
be touched with the caustic itself, or washed with a solution
of it.   When the ulcer cleans, and there is an opaque adhe-
sive circle surrounding it, it should be used less frequently;
and when new matter has been deposited, and seems to be
undergoing a vascular organization, its use must be abandon-
ed.   Tonics and sedatives are at the same time essential.

   The acute interstitial ulcer of the cornea is to be taken
in connexion with the adhesive inflammation, which, in fact,
constitutes the original disease.   The ulcer ceases to extend,
when the inflammation subsides.   Sometimes the conjunc-
tiva and the lamellæ of the cornea, which lie over the ulcer,
are absorbed; it is converted into a superficial ulcer, and is
to be treated accordingly.   Several other consequences fol-
low the interstitial ulcer, according to the course the disease
takes.   Onyx and unguis are terms applied to collections of
pus and lymph between the layers of the cornea, and to si-
milar collections situated in the anterior chamber.   When
the ulcer opens into the anterior chamber, it produces the
hypopion, which is a mixed secretion of pus and lymph; the
lymph flaky and inorganizable, and situated exterior to the
fluid.

   In the onyx, or the puriform collection of matter in the
cornea, we are recommended not to puncture the cornea,
but to leave the matter to absorption; and to aid the natural

process, by a supporting constitutional treatment, mild ca-
thartics and the application of blisters.   When the hypopion
is so large as to rise towards the pupil, and the ulceration of
the cornea is extending, its discharge by an opening near the
margin is advisable, lest a complete sloughing of the cornea
should ensue.   Where ulcer destroys the whole thickness of
the cornea, prolapsus of the iris is the consequence.   If the
projecting part be small, it should be touched with a finely
pointed piece of caustic ; if large, it should be snipped off
with a pair of scissors, and the caustic then applied.

Opacities of the cornea are of three kinds :—1. A gene-
ral nebulosity, produced by a thickening of the conjunctiva
and a deposition of adhesive matter between it and the cor-
nea, or between the lamellæ of the cornea.   This is com-
monly the product of acute strumous ophthalmia.   2. A slow
change of texture, without breach.   The layers of the cor-
nea become opaque, indurated and condensed.   3. Where
new matter has been deposited, supplying an absolute loss
of substance of the cornea from ulceration or gangrene.

The first is the only kind which is likely to be much be-
nefited ; the other two can only be removed so far as there
is a deposit of adhesive matter combined with them, which
is capable of being taken up by absorption.   Injections are
the best remedies ; of lunar caustic, during the decline of
the inflammation ; of oxymuriate of mercury, after it has
disappeared.   Levigated glass, calomel and loaf-sugar, are
sometimes blown into the eye for this purpose.   All appli-
cations of this kind should be regulated as to time and mea-
sure by their effects.   The excitation they produce should
be only temporary.   When inflammation is produced, it is a
sign they have been carried too far.

In strumous nebula, as will be perceived by referring to a
quotation made pages 164–5, ptyalism is advised.   The ves-
sels which, in this case, shoot upon the cornea, are derived
from the sclerotica and not from the conjunctiva, and their
action partakes of the incontrovertible nature of sclerotic in-
flammation.   The deposition is interstitial, and not superficial.
When mercury in these cases disagrees with the bowels, it

should be employed by friction. We are cautioned against its half-way use, when once determined to be an appropriate remedy. Nothing but the clearest demonstration, that the constitution of the patient renders him unable to bear it, should prevent the full and fair trial of the mercurial course. Unless the system be put completely under its influence, all that he has taken goes for nothing.

The sclerotic membrane does not readily take on inflammation, although when inflamed the progress of the disease is obstinate. It is not often primarily affected, but chiefly as the consequence of inflammation of the conjunctiva. It exhibits a circle or zone of vessels around the cornea, pursuing a strait course toward it, of a somewhat brighter hue than the areolar vessels, upon the loose portion of the conjunctiva. This appearance of the strait vessels is sometimes noticed without any previous affection of the conjunctiva. This is primary sclerotitis. The inflammation of this membrane sometimes accompanies, and sometimes is vicarious with rheumatic inflammation. It is often seen in company with, or following gonorrhea, eruptions, or sore throat of a pseudo-syphilitic character ; and the pains to which it is generally allied, are those which succeed to the exhibition of mercury. Still, in the majority of cases of inflammation of this membrane, it is necessary to use mercury ; but it must not be given rashly nor hastily, nor to the exclusion of such other remedies as the symptoms demand, such as nitric acid, Dover's powder, hemlock, hyoscyamus and sarsaparilla.

The principal object, in the treatment of inflammations of the iris and the choroid membrane, is the same, viz. to produce ptyalism. On this subject, however, our author refers us to his essay on these diseases in particular, which was published before the present work. One full blood-letting, or more, should be premised in the acute stage of the disease, and topical blood-lettings during the exhibition of mercury, are generally required at short intervals. Sometimes the complaint yields to venesection, combined with brisk purging ; but, generally speaking, the eye must be made to feel the influence of mercury before it is permanently sub-

dued. ' If any two facts,' says Mr Travers, ' are well established in modern medicine, I apprehend they are these :——First, the power of mercury to arrest acute membranous inflammation, both prior to and after the effusion of adhesive matter ; and, second, its power rapidly to remove, by an excitement of the absorbing system peculiar to itself, the newly effused adhesive matter. If these facts are admitted, the propriety of its use is admitted in iritis, as in carditis, pleuritis, peritonitis, and the only practical question that can arise respecting it is, how far the patient's strength is equal to support the remedy.'

The retina is sometimes, though rarely, the seat of inflammation. Intolerance of light is, however, no sign of this, because it is present in the strumous ophthalmia to a great degree where the retina is unquestionably free from disease, and because the effect of inflammation on a nerve of sense is rather palsy, than increased excitability. The first symptom of inflamed retina is a sudden attack of vehement dashing pain of the most distracting kind, which is described to extend from the bottom of the eye-ball to the occiput, or in the reverse direction, and the supervention, within a few hours, of total blindness, with occasional sparks and flashes of vivid light. The pupil, upon inspection, is gaping and motionless, as in confirmed amaurosis, and the humors are thick and muddy. The external signs of inflammation are in the commencement disproportionate, and quite insufficient to account for the symptoms. In some cases, these symptoms are combined with those of choroid inflammation, and, the consequence is, disorganization and destruction of function in the other internal membranes, as well as in the retina. Beside the intense pain of the attack, there is a sense of confusion so alarming as to threaten the loss of the intellects. It is sometimes marked with so much disturbance of the nervous system, shown by vigilance, temporary wanderings, catches of the muscles of the face, startings and frightful dreams during the short intervals of sleep, coupled with a sense of heat, constriction, and tenderness of the whole scalp ; that it has seemed as if the oph-

thalmia must be secondary, and subordinate to inflammation of the brain and its membranes.

The consequence of this disease is almost always total and irremediable blindness. A full trial has been given by our author to the lancet and to the immediate operation of mercury, but though both were carried as far as could be permitted with safety, the vision was lost. In some cases, the external inflammation has been subdued, and the vision has been recovered so far as to enable the person to distinguish surrounding objects with tolerable precision ; but the gaping and motionless pupil, the discoloured humors and the superficial congestion which remained, afforded little hope of its continuance. A middle aged lady, under the care of Mr Travers, lost both eyes in this way in the course of a fortnight. She expressed, in the agony of her sufferings, a conviction that she must lose either her sight or her senses.

Amaurosis is defined as comprehending all those imperfections of vision which depend upon a morbid condition, whether affecting structure or function, of the sentient apparatus proper to this organ. Cases of amaurosis may be divided into two classes,—1, Organic ; 2, Functional. The *organic* comprehends alterations, however induced, in the texture or position of the retina, optic nerve, or thalamus. As the causes of this form, may be enumerated,— lesion, extravasation of blood, inflammatory deposition upon either of its surfaces, and loss of transparency of the retina—morbid growths within the eye-ball, dropsy, atrophy, and all such disorganizations as directly oppress or derange the texture of the retina—and the state of apoplexy, hydrocephalus, tumours, or abscesses in the brain, in or upon the optic nerve, or its sheath, and thickening, extenuation, absorption, or ossification of the latter. These cases are all from their nature incurable.

Functional amaurosis may be arranged under three heads, the symptomatic, the metastatic, and the proper. The first includes a very large class of diseases, of which it is here sufficient to say, that the amaurosis being subservient to the disease which affects the system at large, or some one im-

portant organ, the latter is the proper object of medical treatment. Thus where there is, co-existing with the amaurosis, a morbid state and action of the vascular system, a disorder of the digestive organs, an interruption of the functions of the uterus, an excess or deficiency or an accumulation of the wonted secretions and excretions, local irritation from wounds, abscesses, caries, worms, &c., or a morbid irritation of the mind, the amaurosis must be regarded as only secondary ; these being the proper objects of treatment. The prognosis, of course, will depend upon the nature of the original disease. The second, or metastatic amaurosis, proceeding from the retrocession of some other disease, is a rare but well defined variety. The restoration of the original malady, when it can be done with safety, or the substitution of an artificial irritation or discharge, is the practice most likely to prove successful.

The third, or proper functional amaurosis, presents great variety ; but if treated at an early period, is very often cured. The extreme states of light and heat, and the over exertion of the organ, are the chief causes of it. The simple removal of the causes which have produced the disease, does much towards the removal of it. Their continuance frustrates all treatment, and leads finally to the confirmed organic state. As being particularly interesting to practitioners, we quote the two following cases. The first is in the words of the patient himself :—

' Having habituated myself for the preceding twelve months to intense study, reading and writing to a very late hour, which had been only interrupted for a few days by a slight inflammation of my right eye, I quitted London to recruit my health in the pure air of ———. This daily improved, but I found a growing imperfection in the vision of my left eye, which advanced unaccompanied by inflammation, pain, or any other external symptom of disease. It seemed at first a film before the sight, but at length amounted to a total loss of vision. On examination, I found the pupil greatly dilated, and learned that the iris had little or no action. By the advice of Mr T. whom I now consulted, I applied a

blister, extending from the centre of the forehead round the eye to the root of the nose.   This drew well, and I continued it open for ten days, closing the eye from light during that period.   I took at the same time a calomel and opium pill thrice a-day.   In the space of a few days my mouth became sore ; the pupil acted, though unequally, and I experienced a gradual recovery of vision.   In the course of six weeks, I was enabled to resume my studies, and could perceive no defect of vision.   I had gradually reduced the dose of calomel, and now discontinued it, drinking the decoction of sarsaparilla.   At the distance of four months from this occurrence, the pupil is regular and active, and the sight unimpaired.'   pp. 167, 168.

' A captain in the navy had made much use of his right eye for many years in observations with telescopes and sextants.   About a week before he applied to me, he observed a mist before this eye, which increased until it was so dense, that he could neither distinguish the features of his friends, nor the large letters of a title page.   The eye was free from inflammation, the pupil large and sluggish ; he had no pain either in the eye or the head.   He was bled copiously from the arm and temple, and briskly purged with calomel and jalap at short intervals.   Blisters were applied to the temples.   He then rubbed in a drachm of the strong mercurial ointment for several nights in succession ; this produced a copious flow of saliva and violent diarrhœa, so that no benefit was obtained.   By the calomel and opium pill taken night and morning his gums were immediately made sore.   In three days the mist began to clear, and he was delighted to find that he could tell the hour by his watch.   He continued improving so rapidly that, at the expiration of ten days, he could read an ordinary print with perfect facility.   The pupil had recovered its natural magnitude and activity.'   pp. 169, 170.

Those cases of amaurosis which come on suddenly and rapidly, are more likely to be benefited by medical treatment, than those whose course has been slow, and steadily progressive.   The removal of an oppressing or irritating cause will often produce sudden and marked relief, such as clearing the digestive organs, or taking away blood.   The drawing a carious tooth has distinctly arrested the progress of

amaurosis, in a person who had lost one eye from the delay of a similar operation two years before.

Some of the functional cases are as obstinate and incurable in their character as the organic. But on the other hand, it is more frequent than has been generally supposed, to meet with those which admit of material and decided improvement, and even of complete recovery. It is rather the degree, than the nature and origin of the functional disease, that should influence the prognosis.

The treatment of amaurosis is almost exclusively constitutional. To all the various external remedies, in the forms of stimulant vapours, drops, ointments, embrocations, sternutatories, &c., our author attaches no value. Where an irritable state of the conjunctiva exists in conjunction with amaurosis, some of the external applications usual in such cases are of use. Cupping, issues, setons and blisters, in some cases, are found of service. But blisters, more particularly, when managed according to the nature of the case, are of great value, sometimes as irritants merely, and sometimes as continued drains. They should be frequently repeated, the place of applying them being changed, from the temple to the superciliary ridge, to the mastoid process, and to the nape of the neck, regard being had to the effects produced by them on the constitution of the patient. In some persons the obscurity of vision will be for a time increased by them, and to such the permanent blister would be injurious. Hence, in a very susceptible subject, or a delicate skin, a mustard plaster, applied for ten minutes at a time, and repeated now and then, may answer the purpose of irritation more conveniently. It is with this view, that the moxa is used to so much advantage on the continent.

Electricity and galvanism have been highly recommended in amaurosis. They have never in a single instance answered any purpose in the practice of Mr Travers.

The degree of constitutional power which enters into the disease, forms the first and most important question in the general treatment. It may arise from states of the constitution entirely opposite to each other, the local affection exhi-

biting no important difference.   There may be general ple-
thora and cerebral compression, which require depletion ; but
there are many other cases which are injured by it,—and
the great mistake in the treatment of amaurosis is the indis-
criminate detraction of blood.   Depletion aggravates the dis-
ease, in cases of undue determination of blood to the organ,
which has followed deep seated chronic inflammation or dis-
tress from over excitement, by which the vessels have lost
their tone.   It aggravates all cases of direct debility and pro-
per paralysis of the retina.   Antispasmodic and nervous me-
dicines do no good, and Mr Travers has found no advantage
in the emetic practice which has been so highly recommend-
ed.   The cases of gastric disorder, in which it would be es-
pecially applicable, are most benefited by a course of blue
pill, saline purgatives, and such other cathartic medicines as
the case may seem to require, combined with some tonic
bitters, as columbo and gentian with soda,—followed by
general tonics, as bark, steel, mineral acids, or arsenic, ac-
cording to circumstances.

When the amaurosis is recent and sudden, ' and either the
signs of an obscure inflammation are present, or only the
amplitude and inactivity of the pupil correspond to the pa-
tient's history, mercury should be introduced with all conve-
nient rapidity into the system.   I mean so as to ruffle it in
the least possible degree.'   Complete salivation is not re-
quired ; if mercury is to benefit the case, its efficacy is per-
ceived as soon as the mouth is sore.   Many cases of perfect
amaurosis resist its influence entirely ; but in recent cases,
imperfect, but rapidly growing worse, its power of arresting
the disease is superior to that of any other article of the Ma-
teria Medica.

It is almost unnecessary to add, that attention to the diet,
regimen, &c., by securing a pure dry atmosphere, using the
cold bath, horse exercise, early and sufficient rest, &c. &c.
are of as much or more importance than any drugs, and that
they will alone cure many of the lighter cases of sympa-
thetic amaurosis.

We pass over the account of cataract and some other dis-

eases which require operations for their remedy, to give a passing notice of some very common and troublesome, but generally neglected affections of the eyelids.

The hordeolum, or stye, if large and painful, should be discharged with the point of a lancet, and poulticed or bathed with a slightly astringent wash, according to circumstances. When phlegmonous, indurated, and slow to suppurate, occasional frictions will promote their absorption. But it is more important to prevent their recurrence, than to cure them when they exist. They are apt, when often occurring, to leave a permanent conspicuous redness of the borders of the tarsi, a slight thickening of the conjunctiva, and small denudations of the skin, beside a loss of the eye-lashes, which increases the deformity still more. The ointment of nitrate of mercury, or of the red or white precipitate of mercury, should be used at bed-time, daily or several times a week, just strong enough to give a momentary smart upon closing the eyelids, some mild unirritating salve being used in the intervening periods. Alum and zinc washes assist this object.

The lippitudo, in its first stage, is a simple excoriation—in its second, an ulceration of the borders of the eyelids. It is the result of inflammation of the palpebral conjunctiva, aggravated by the acrimonious quality of the vitiated Meibomian secretion. In its acute form, it generally yields to a single stimulant application. When this is not the case, the lead and zinc ointment, or one combined with opium, will often be of service. Ten or fifteen drops of the liq. plumbi sub-acet. added to two drachms of the zinc ointment, is a good preparation. Some persons cannot bear unctuous applications, and to them hot water affords the most relief; and it has been found ·soothing and refreshing to the eye, at a temperature which is not endurable to the hand. In its chronic form, lippitudo is at once obstinate and deforming. The vessels of the palpebral conjunctiva are turgid, and at length varicose, the membrane a little overlaps the thickened tarsal border ; the follicles are plugged, and here and there is one so much distended by inspissated mucus as to occasion

acute inflammation.   These should be opened and the con-
tents discharged ; the conjunctiva be scarified, and one of the
ointments above named applied to the edges of the tarsi.   In
bad cases it is sometimes useful to touch the parts with the
sulphate of copper, and with solutions of copper, zinc, lunar
caustic, or corrosive sublimate.   The strength of all these
applications should be such as to excite a pretty smart irri-
tation, and a copious flow of tears.   This degree of strength
can only be determined by repeated trials, and it may require
alteration as the disease proceeds.   The irritation should be
such as to prevent the patient from keeping his eyes open
for some succeeding minutes ; but no increased congestion
should be apparent on the following day.

MISCELLANEOUS ARTICLES, ORIGINAL AND SELECTED.

Section I.—Original Papers.

III.   *An Illustration of the principal Power which appears
to be engaged in moving the Venous Blood.*   Communi-
cated for this Journal by David B. Slack, M.D.

The different theories which have been invented to explain
the causes of the venous circulation, are too well known to
require a particular enumeration, and much less a particular
description of each, and a comparison of their different de-
grees of probability.   It is sufficient to say, that nothing like
demonstration is to be found in proof of any theory which
has hitherto been suggested.   The theory which is sanction-
ed by one of the latest, and perhaps one of the highest au-
thorities, is the following :—' It has lately been pretty clearly
established,' says this authority, ' that by far the most active

power in the return of the blood to the heart from the veins, is the comparative vacuum which takes place in the ventricles of the heart, when exhausted of blood by the systole or alternating contraction of this organ ; in consequence of which the venous blood is as it were sucked up into the right ventricle from the venæ cavæ or venous system at large.   So that the heart, upon this beautiful principle of simplification, becomes alternately a forcing and a suction pump.'*   It is not a little singular, that what is demonstrated to be false by the most obvious effect of every ligature that is placed upon the human arm, and this is done by a physician almost every day, should have obtained so long, and have been sanctioned by such high authorities.   This suction theory supposes the blood to be moved by the pressure of the air upon the veins.   But when a ligature is placed upon the arm, the veins below the ligature become more than ordinarily distended.   Now what vacuum is there below the ligature for the pressure of the air to force the blood into ?   The veins are cut off from the supposed vacuum of the heart above the ligature, but still the veins fill, and if a lancet be plunged into any one of them, the blood spouts to a distance often further from the puncture than the heart is from the puncture.   Or in other words, it spouts with a force sufficient to have carried it to the heart, if it had been in the vein.   Tie any vein in the system, one of the cavæ as near the heart as possible, and the same effects follow,—the vein swells, and if opened, the blood issues from the orifice in a full, forcible stream.

If the suction theory with respect to the circulation of the blood were true, a puncture made in a vein which has been taken up and tied, should be followed with precisely the same effects, as an orifice cut in the hollow tube of a suction pump between the piston and valve.   But if an orifice be so cut in the hollow cylinder of a suction pump, no fluid can be raised in it, because the air pressing equally in all directions, presses through the orifice, fills the cylinder, and so balances

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* See Note in Book of Nature, by Dr Good, vol. i. p. 232.

that pressure which is made upon the fluid without and below the valve.   So if the venous blood be carried to the heart by the force of atmospheric pressure on the principle of the suction pump, no blood should issue from an orifice made in a vein which has been tied ; because the pressure of the air upon the orifice balances the pressure upon the vein below, and so must prevent the blood from flowing.   These facts must be regarded as demonstrative of the fallacy of the suction theory, and require no other arguments or experiments to show that the supposed vacuum made by the heart has no power in moving the venous blood.   Other proofs equally demonstrative might be brought, but they are unnecessary. I will only add, that if the suction theory were true, those who descend to the bottom of seas in diving bells, must, in a literal sense, have stout hearts, and a most rapid pulse.

If a ligature be placed upon any of the excretory ducts in the animal system, these ducts become distended with their respective fluids.   This is true of the thoracic duct, the hepatic and common bile ducts, and the ureters, as has been frequently tried ; it is also true of the teats of animals in their time of giving milk.   If a puncture be made in one of these ducts so tied, between the gland and ligature, the fluid issues from it like the blood from a vein which has been tied. Milk often streams from the distended udders of cows with a force which not only overcomes the pressure of the atmosphere, but which carries it to a considerable distance, whether the teats be held in an upward or downward direction.   The ureters are as long as some veins, particularly the coronary veins, yet the urine is moved through them, and sometimes very rapidly, and apparently as well when they are placed in a perpendicular as in a depending situation.   The least inspection shows us, that there exists, in all the glands, a power to excrete their fluids, not by the help of atmospheric pressure, but against it ; and every appearance in the motion of the venous blood, exhibits a similar power in the venous capillaries.   This power, which probably consists in an action peculiar to all glands, accounts for the filling of veins when tied ; for the circulation of the blood in valveless veins,

as the vena azygos, veins of the head, and venæ portæ, as well as in those which have valves ; and also for its circulation in the bones, where atmospheric pressure can have no effect, and where every trace of arterial action must be lost.

This excretory power, which is peculiar to glands, is not capillary attraction ; for capillary attraction can never raise a fluid entirely through a tube, much less can it throw a fluid through a tube to the extent which is sometimes shown in bleeding. Nor is it the absorbing power of Dr Darwin, for absorption can only mean either suction or capillary attraction. And as every trace of arterial action appears to be lost before the blood reaches the venous capillaries, we have no other known power left us to account for the motion of the venous blood, but that which is exhibited in the secretory and excretory action of glands. In a gland, particles of fluid are secreted, and in order for other particles to be secreted, the first particles must be excreted, or pushed into the duct of the gland, and so are crowded on by successive particles or portions of fluid, which are constantly secreting. The weight of venous blood to be raised to the heart, is scarcely nothing when divided among the infinite number of capillaries which unite to form the large veins.

The heart, with respect to its power of moving the blood, appears to me, by no means, to be entitled to that vital importance which is generally ascribed to it. That the heart is not the chief agent in the circulation of the blood, is rendered probable, by the facts, that some animals have no hearts, and that all vegetables have nothing which resembles a heart, but still circulate their peculiar fluids ; and also, that after all pulsation has ceased in the human heart, the veins are found filled with blood, while the arteries are entirely empty. In venesection, the momentum, which the venous blood sometimes discovers, appears more than sufficient to return it to the heart. But whether the force with which the venous blood is secreted and excreted through the venous ducts, is sufficient to circulate the whole mass of blood, can be determined only by experiment. This point might be tolerably well ascertained by inserting a tube into one of

the cavæ of a living animal, equal in length to the pulmonary
artery, and another tube into the pulmonary vein as it enters
the left auricle, equal in length to the branches of the aorta;
if the blood should be raised through the whole length of
such tubes, when held in a perpendicular direction, this ex-
periment would prove that there is power enough in the ve-
nous capillaries to effect the entire circulation of the blood,
without the action of the heart.

Instances have been given, where the valves of the heart
have become ossified, and of course the propelling power of
the heart much impaired, but still the subjects of this disease
have lived for years.   Other instances have very frequently
occurred, where pulsation has ceased for hours; as in the ve-
ry remarkable case of Mr John Hunter, who retained his
senses and voluntary powers, but for four hours discovered
no pulsation.   In such cases it seems quite incredible that
the circulation entirely ceases, although it may be very slow,
and in the superficial veins, where the pressure of the air
particularly opposes it, it may cease.

The heart appears to be a subordinate power in the circu-
lation of the blood, whose office consists in giving the pro-
per quantity of force to the blood, and in regulating that
force,—but not in giving the first, the greatest, or the last
impulse to the blood.   The chief force which moves the
blood, most evidently resides in the venous capillaries; in
which I include not only those vessels which take the ve-
nous blood from the arterial, but all those vessels which are
called lacteals, lymphatics, or absorbents.

It has been said above, that all the excretions are per-
formed against the pressure of the air; this may require
some illustration.   This pressure acts against the excretion
of the milk; and when the force of the excretion is not suf-
ficient to overcome it, it is removed by the act of sucking.
The muscular power of the bladder, overcomes this pressure
in emitting the urine.   It may not be quite so clear how this
pressure is overcome in moving the venous blood.   But it
is very plain, that if a suction pump be applied to a vein
which has been tied, and all the blood drawn from it, or in

other words if the veins be cupped, the coats of the vein being flaccid like a bladder, its sides will be pressed together as there is a vacuum within.   If the pump be withdrawn and the vein be tied so that no air is admitted, it is evident that the capillaries which supply this vein, must excrete their fluid with a force sufficient to overcome the pressure made upon the vein.   If the capillaries were dead tubes with a fluid moving through them, the pressure of the air would amount to nothing, since it presses equally in all directions, and consequently must act as much for as against the motion of the venous blood ; but as the capillaries are active, like the heart, they must overcome this pressure in every direction.   The valves of the veins signify nothing in first moving the blood, since the pressure of the air acts against the raising of these valves, and before the fluid reaches them.   The assistance of the valves takes no effect, until the fluid is raised above them by the activity of the capillaries.   The solid, horn-like texture of the arteries, added to their cylindrical form, enables them, in some measure, if not entirely, to overcome the pressure of the air.   In this respect, they have greatly the advantage of the veins.   If the arteries were flaccid and compressible like the veins, it is probable that there would not be power enough in the system to propel the blood through them.   The degree of resistance which the form and texture of the arteries opposes to the pressure of the air, might be determined by tying one end of a section of an artery, and exhausting the air by applying a small air pump to the other end of it.

Is the venous blood a secretion from the arterial ?   If there were any propriety in defining a gland an organ which, in its action, is independent of the principles of hydraulics, projectiles, and capillary attraction, the venous system would be, in the most emphatical sense, a gland.   Nor can there be, in any respect, any great violation of the principles of classification, in considering this system as a gland.   The venous system differs not more in structure or office from some of those parts called glandular, than such parts do from those organs which are called the more perfect glands. Se-

cretion is a term well understood in physiology, as express-
ing an action peculiar to the living principle, and is the only
intelligible term that can be used for expressing the action of
the venous capillaries.   Absorption is a barbarous term,
when applied to express the action by which the venous
blood is taken from the arterial, as it necessarily conveys an
idea of a mechanical action.   Richerand defines the term se-
cretion to be, ' That function by which an organ separates
from the blood the materials of a substance which does not
exist in that fluid with its characteristic qualities.   By the
the term secretion, one should not therefore understand the
mere separation of a fluid existing before the action of the
organ by which it is prepared.'   Even this definition, which
that author finds quite too narrow to include some of the
secretions, such as the perspiration, tears, and the fluid of
dropsy, does not exclude the venous blood from being a se-
cretion.   For one of the most characteristic qualities of the
arterial blood, is its stimulating the system and preserving
life, while the venous ·blood produces paralysis and death.
Another quality of the arterial blood is its scarlet colour,
while the venous blood is a dark purple.   The two fluids
also differ in their chemical properties.   The rapidity with
which the venous blood is taken from the arterial, is no argu-
ment against its being a secretion, since the proportion of the
secreting surface to the quantity of fluid secreted, is as great
as the secreting surface of the kidneys and of the mammæ of
animals is to the quantity of fluids which they secrete.

The venous blood has been considered as the refuse of
the arterial blood ; that part which is not secreted by the
glands.   But this doctrine appears to be mere conjecture,
neither favoured by demonstration nor analogy.   The ve-
nous blood appears to remain nearly uniform in its qualities,
through health and disease, as appears from the experiments
of Deyeux and Parmentier, who analyzed blood drawn from
patients under different diseases, but found it scarcely to
differ from healthy blood.   When any foreign substances are
introduced into the veins by reason of the debility of some
of the venous capillaries, or from other causes, such sub-

stances seem to be immediately expelled through some other of the secretory organs, as if the venous capillaries possessed the power of forcing *such* substances upon those organs. The spirits of turpentine, and other substances, have been found in the urine when no traces of them could be detected in the blood. Such substances being diffused through the great mass of the blood, probably hold too small a proportion to it, to be discovered ; but when the whole of such substances are excreted by the kidneys, they bear a greater proportion to the quantity of urine than they did to the whole mass of the blood, and so become evident to the senses. The lacteal vessels, which make a part of the venous system, refuse every foreign and heterogeneous substance, as if the vis conservatrix naturæ resided especially in them, and not in the alimentary tube from which they secrete.

Whether the arteries, and the secretory and excretory vessels of glands are continuous or separate vessels ; and whether what are called the lymphatic or absorbent vessels and the veins are continuous or separate vessels ; and also, whether the arteries and veins are continuous or separate vessels, are points which have never been satisfactorily demonstrated, and, of course, we have nothing but the light of analogy to assist us in conceiving of the relative situations and different offices of these vessels. Analogy would seem to suggest that those capillaries which take the venous blood from the arterial, are situated with respect to the arteries as the lacteals are with respect to the alimentary tube ; that they act in a similar manner and perform a similar office ; that the arteries, like the alimentary tube, tortuous in their course and various in their action, extend from the heart to the surface, performing in the glands an excretory action ; or, in other words, that the arteries terminate in the excretory ducts of the skin, kidneys, cellular membrane, and in all the excretory ducts of the body; and that those capillaries which take up the venous blood, and the lacteals, lymphatics or absorbents, are one uniform system of vessels terminating in all the hard as well as soft parts of the body, converting

into chyle or venous blood whatever they take up and carry into the circulation.

It must be a very singular property in glands, if they are endowed with a power of secreting every foreign substance that may chance to be forced into the circulation. It is much the most rational to suppose, that the venous capillaries terminating in every part of the system, are endowed with a power of secreting a homogeneous fluid, and of refusing all heterogeneous substances, or of forcing them upon the glands. This is most obviously the fact with respect to the lacteals. The delicate nature of the heart and the preservation of the body, seem to require such a power in the venous system. The result is the same, as to the mere separation of the fluids, whether we consider the venous blood to be secreted from the arterial, and the other excretions the refuse, or whether we consider the other excretions to be secreted from the arterial blood and the venous blood the refuse. Why then give the control to the venous system? Because it better accounts for the frequent derangement of the glands, and for the uniform purity of the blood. The venous capillaries are evidently the first vessels which begin to act, and the last which cease; because the heart must first have blood thrown into it, in order to stimulate it to act; and because the veins are found filled with blood after death. It is not contended that the venous capillaries never admit foreign substances, but that they seem to admit them with less impunity than the glands, and to have a constant tendency to be freed of such substances at the expense of the glands.

It is questionable, whether even bile ever enters into the circulation in any perceptible quantity. It is a general opinion, however, that in the frequent obstructions of the bile ducts, the bile is drank up by absorbents and carried into the blood, and so causes the yellow appearance of the skin and whites of the eyes in jaundice. But why is not the bile, with all its characteristic properties, every day drank up by the lacteals? It will probably be answered, that the lacteals have the power of converting this secretion

back again into chyle, but that the absorbents have not this power. That must be a truly wonderful set of vessels which are destined to absorb, in the gross, all the solids and fluids of the body! Well are they called absorbents, for they seem to drink up bile, urine, pus, and even bone, as a shoat drinks up swill, without at all altering their qualities! The bile possesses both an emetic and a cathartic property in a very high degree; it, therefore, seems a very unfit and deleterious substance to be circulated through the heart and brain. If every case of jaundice were a violent case of yellow fever, this would be an effect which we might suppose to follow the introduction of bile into the blood. But I am not aware, that any traces of bile have ever been satisfactorily detected in the blood, either in jaundice or yellow fever. From observing that the bile did not mix with the contents of the duodenum of a dog which he opened, Dr Saunders was led to query, whether the bile is ever taken up by the lacteals, and whether its cathartic effect is not the only object which it answers in the intestines. Why should not other emetic and cathartic substances be taken up and circulated as well as the bile? And why also should other emetic and cathartic substances produce immediate disease in the system and bile be circulated with such impunity?

The bilious colour of the skin, and of the white of the eyes in jaundice, and the appearance of bile in the urinary, cutaneous, and other excretions of the body, are much better accounted for upon a different principle than by their absorption into the blood. It is very well known, that when one secretory organ is checked or impaired by disease, another assumes a similar office and supplies its place. The skin frequently secretes for the kidneys, and the kidneys for the skin. When the menstrual discharge is checked, the menstrual function is frequently assumed by the stomach, lungs, or schneiderian membrane. In the lungs and schneiderian membrane, the discharge is often attended with no pain or soreness, as if it were a natural excretion, while in the stomach it appears to be merely a difficult menstruation which, in a short time, leaves that organ in a perfect state of health.

Urine has been excreted from the ears and skin, when no traces of it have been found in the blood.   Dr Percival relates a case of ascites, in which a spontaneous cure was effected by the discharge of several gallons of the matter of dropsy from the stomach in the course of a few hours.   In this case, the stomach seems to have assumed the diseased action of the cellular membrane.

In chlorosis, the lungs and stomach seem to take on the diseased action of the uterus, as is plainly indicated by the fœtid breath and morbid state of the stomach.   Why may not the skin, kidneys, and excretory membranes of the stomach and intestines, take on the action of the liver ?   And why may not the yellow hue of jaundice be explained with more justice to the known laws of the animal system, by supposing that the cellular membrane sometimes secretes bile instead of fat ?   In cholera morbus, the stomach and intestines appear to sympathize with the liver in the secretion of bile.   On the whole, we have strong reasons for believing that the venous capillaries are secreting vessels, which exert the chief power in the circulation ; that in them, more especially, resides the vis medicatrix naturæ, or power of preserving the purity of the blood ; and that, whatever is taken into the blood-vessels, whether it be pus or bile, or bone or muscle, is first converted into chyle before it can be admitted into the circulation.

IV.   *A Case of unusually severe and long-protracted 'Dolores Secundarii.'*   Communicated for this Journal by Richard Hazeltine, M.D.

Mrs L. R., of Lynn, aged 37, and the mother of six children, has, in all her lyings-in, been most severely afflicted with after-pains.   This was the case even after her first parturition, and under the management of another physician.   I have attended her in all her parturitions except the first ; and I never knew a person more severely exercised with after-pains than she has been, in almost every instance.   The circumstances of Mrs R. at her lyings-in, as it respects after-

pains, are so peculiar and extraordinary, that I have thought a history of them might be sufficiently interesting to the members of the medical profession, to be communicated.

Mrs R. previously to her marriage, was never very healthy ; but was frequently so much indisposed as to be unable to attend to business.   After her marriage, she enjoyed better health generally, but was still subject to occasional and severe illnesses.   Her illnesses were, for the most part, of a spasmodic nature ; and of the form commonly called ' cramp ;' which affected, principally, the muscles of the trunk ; and was extremely painful.   She is of a good size ; rather of a masculine figure ; and to appearance, would seem to be a person of an excellent constitution and excellent health.   She is habitually subject to costiveness ; and her menstrual evacuations have always been irregular, sparing and painful.   She was always accustomed to active, and sometimes, laborious, employments ; and after her marriage, she took the sole charge of her family, at least so far as belonged to the female department.

After waiting on Mrs R. in one or two parturitions, and perceiving how much she suffered from after-pains, I taught her that in future parturitions, if the business were left wholly to nature, or nearly so, and particularly, if she kept seated as long as she could before taking a recumbent posture ; it might be expected that she would not endure so much distress after the birth of the child.   These instructions I was early made acquainted with, particularly from the reading of Mr White's Treatise on Pregnant and Lying-in Women ; and I have had ample opportunity, in other cases, to test their correctness : but I have been much mortified, in the case of Mrs R., at my own and her disappointment, at being compelled to admit, that although as a general rule those instructions are most clearly well-founded, yet that the sufferings of herself after parturition, form an exception to it ; for although I did in one of her travails derive some satisfaction from the evident advantages of impeding the process of parturition, and the expulsion of the secundines, I must confess it was only in one instance ; and then the ad-

vantages were much less than I had reason from my former experience in such cases to expect : and it was too true, that in every succeeding instance of parturition, the pains which Mrs R. endured for several days after the birth of her children, did in fact, as is usual with women subject to after-pains, become worse and worse.

Saturday evening, November 5th, 1825, at about seven o'clock I was called to Mrs R., the subject of the preceding statement and observations, in travail of her sixth child.   She had been unwell all the preceding afternoon, and had, according to my former instructions, delayed sending for me, till her child was near being born ; and was, in fact, actually expelled before I got to her.   I tied, and divided, the *funis umbilicalis ;* gave the infant to an assistant, and placed my patient on her back, with her head and shoulders a little raised, and her feet resting in my lap, seated at the bed-side, *meo consueto more,* determined to wait, if nothing unfavourable should occur to require different management, till the secundines should be wholly expelled by the efforts of nature.   Pretty soon she began to complain of ' cramp' in the abdominal muscles, so severe, that I thought it expedient to give her a dose of twenty drops of laudanum.   In a few moments the ' cramp' ceased, and the after-pains commenced, and recurred at short intervals with their usual severity.   I attended frequently to the effect of these pains, and found that the uterus contracted in the usual manner, and without any hemorrhage, or other unfavourable circumstance.   The secundines continued to descend, and at length came so low, that almost the least possible effort on my part, was sufficient to bring them through the *os externum.*   I should not even have applied so much force as that, but that the mass had descended so low, that notwithstanding the severity of the pains, they seemed to make no impression on it ; and it was evident it might as well be taken away, as be allowed to remain any longer where it was.   After the removal of the secundines, the detrusion of which had occupied, perhaps, three fourths of an hour, I assisted in putting my patient to bed ; and tarried some time afterwards, as

I commonly do, to attend to the dressing of the *umbilicus*, and to see that all is doing well.   The after-pains continued to recur with undiminishing severity ; but I left her in about an hour, trusting to half an ounce of laudanum, and more than seven grains of opium, in pills, for procuring a mitigation of them, and possibly, some sleep.

Sunday morning, I called to see my patient ; and learned that the pains had continued all night with such severity that she had slept none, although the opiates had been nearly all expended ; and she had drank freely of an infusion of mother-wort, [*Leonurus cardiaca* Lin.] of which, from long experi-ence of its utility in moderate cases of this kind, I entertain a very favourable opinion.   There had been, through the night, no lochial discharge, or none of importance ; neither was there any more at present.—I left her with a new stock of opiates, pulv. castor. and camphor, with directions to ad-minister them, together with mild enemas with laudanum, as circumstances might require.

Before ten o'clock A.M. I was summoned in haste to visit my patient again.   I found her exercised with the most vio-lent throes,—I can employ no other term that is so well adapted to convey an idea of her efforts,—pulling with her hands by the hands of other persons, as forcibly as parturient women ever pull in the most urgent cases of travail : and she had now, in the *intervals* of those efforts, which were of only a few moments' duration, begun to vomit, and to be faint, breathless, and occasionally incoherent in her ideas and expressions.   The breathlessness was such that she could not lie down ; and of course, for the most part, she necessa-rily maintained a sitting position, in bed, supported, how-ever, by some person behind her, with pillows, &c.   This oppression of respiration was probably of the nature of hy-steria, and perhaps, with the vomiting and occasional inco-herence, the effect, in some measure, of the opiates.   I have in a few instances, and in never more than a few, seen wo-men in somewhat similar circumstances ; but not in precisely such.   In this case, with all the circumstances of distress, there was little or no discharge from the uterus.   In the

few cases that I have known, besides the faintness in the in-
tervals of pain, there has been, during the pains, some con-
siderable hemorrhage, and an occasional expulsion of *coa-
gula ;* but there was neither in this case : and that these
pains were genuine after-pains was sufficiently evident, from
the patient's having been in good health previously to the
commencement of her travail ; from their immediately suc-
ceeding the birth of the child ; from their alternating with
short intervals of comparative ease ; and from no one circum-
stance being present, indicative of inflammation. It is true,
there was deep suffusion of face, like that of a man hard at
labour in a warm day ; and there was a frequent call for li-
quid to wet her mouth ; but her skin was not preternaturally
warm, nor was her pulse full, or much accelerated.——The
next day after waiting on Mrs R. in one of her former tra-
vails, finding the after-pains so severe and obstinate, I made
an examination to ascertain whether there were any *coagula*
or other substance irritating the *orificium uteri ;* but I could
discover nothing.——I now found my patient so ill, that I did·
not think it prudent to leave her more than two or three
hours at a time, but staid from public worship that I might
visit her as occasion required, and do what should seem to
be advisable. I visited her three or four times during the
day, and did, and directed to be done, all that *my* profes-
sional skill suggested ; and I was sorry to perceive, with but
little advantage, at least for several hours.——It would be su-
perfluous to attempt to relate all that was done in this case
for the relief of the patient : let it suffice to say, that opium,
and castor, and camphor, in substance, and in large doses,
alone, and in varied combinations, were exhibited ; tincture
of camphor, ammoniated tincture of assafœtida, enemas of the
latter article infused in tepid water ; of laudanum, of hops,
of *eupatorium perfoliatum*, &c. &c. were administered ;
stupes wrung out of hot decoctions of bitter herbs were ap-
plied to the hypogastric region, the patient was placed and
supported over a vessel containing those herbs in decoction ;
and compression of the abdomen by means of a binder, was
tried ; but all to no great purpose : the medicines taken into

the stomach were frequently ejected ; the laudanum injec-
tions, the hot stupes, &c., gave only temporary relief ; al-
though it was evident that so much of the opium was retain-
ed in the stomach, as, together with the laudanum injections,
to produce some of the disagreeable effects of that article ;
and I was brought to a stand ;—' perplexed, but not in des-
pair.'——There are times when it becomes indispensably
necessary and highly proper for a medical man, whether
adept or empiric ; whatever his acquirements or qualifica-
tions ; to recur to *principles* of some sort, either true or false,
by which to direct his practice ; that is, he must think ; he
must theorize ; for as has been well observed, ' to think is to
theorize ; and no one can direct a method of cure to a per-
son labouring under disease, without thinking, that is, without
theorizing.' I betook myself to theorizing ; and taking na-
ture for my guide, (for her dictates were not to be disre-
garded in the present scene of commotion and distress,) it
was obvious that all her efforts had relation to the produc-
tion of the lochial discharge ; but these efforts were exces-
sive, irregular, mischievous ! This is a high accusation to
bring against her goddesship ; but the event, I trust, will
prove the validity of the charge. This case was one, if I
mistake not, of which Dr Rush speaks, ' where the efforts of
nature are over-proportioned to the strength of the disease.'
A lochial discharge was the necessary object to be brought
about ; but the efforts of nature for that purpose, were dis-
proportionate, spasmodic, and excessively painful. What was
to be done ? One indication only, it was believed, presented
itself to the practitioner ; and that accomplished, the neces-
sary lochial discharge would probably take place of course.
This indication was to check, subdue, and control the inor-
dinate actions of the system, particularly of the uterus and
those parts whose actions are more immediately associated
with it ; that thereby its vessels, which were now morbidly
constricted, and from which, in ordinary cases, the *lochia*
readily proceed, might become sufficiently relaxed to admit
of the necessary drain. Relaxation, then, was the indica-
tion to be attended to, particularly of the uterine system ;

but how was this to be produced ?   Antispasmodics and opiates had failed to accomplish the desired purpose ; although enough had been exhibited, and enough retained, one would think, to produce the necessary effect, if those classes of medicines *alone* were entitled to confidence in the case. Blood-letting occurred to me as the most promising expedient, and one to which I might resort with greater prospect of advantage than any other that I could think of.   I had bled my patient about four weeks previous to her present confinement, to the quantity of from twelve to fifteen ounces, for cramp in the abdominal muscles, hips, pain in the side ; and for painful, varicose distensions of the lower extremities ; and with very good effect.   Her pulse, indeed, was now small, and not very active, ranging from ninety to a hundred beats only in a minute, but it was rather hard ; her temperature, as already stated, was not increased ; neither was she much thirsty : but I knew not what I could do, more likely to allay the commotions of the system, take off spasm, bring on a relaxation, and thereby promote a lochial discharge, than to take blood from the arm.   It was to be hoped, too, that blood-letting would render the system more susceptible of impression from the other means employed.   I accordingly opened a vein, and took nearly sixteen ounces of blood.   This evidently diminished the painful efforts ; but not so much as to ensure my patient any sleep, even with what might be deemed a prudent use of opiates.   I waited, perhaps, an hour ; removed the dressings from the arm, and took from the same orifice, about the same quantity more ; certainly in the whole not less than thirty ounces.—I have formerly been in the practice of weighing blood, when taken by blood-letting, and profess to judge with so much accuracy as to speak with confidence of the quantity by weight, which I at any time see in a common bowl.— This second evacuation produced the most decidedly good effects ; it not only greatly assuaged the violence of the painful efforts, but it also removed the disposition to vomit : so that I thought I might confidently trust, for the ensuing night, to a continued use of some of the means which had

been already employed, particularly the opiates and the fo-
mentations, for procuring sleep ; nor was I disappointed.

From this time my patient convalesced ; but the painful
efforts were still so severe for several days and nights, that
she could get no refreshing sleep without the opiates ; and
even as late as the twenty-seventh of the month, in the
morning, she experienced a recurrence of two painful contrac-
tions, so severe, and in such rapid succession, that she consi-
dered it necessary to take a dose of laudanum ; and she had
a few pains for several days after that time.

I shall finish this communication by a few queries and re-
marks in relation to the preceding narrative.

1. Could emmenagogues have been of any use in this case ?
I was decidedly of the opinion they could not ; and that eve-
ry thing that would increase the uterine contractions, would
prolong the distress, and prevent the necessary uterine dis-
charges : and my endeavours were, of course, wholly direct-
ed with a view to promote a calm ; not doubting that when
the uterine contractions were sufficiently subdued, the lo-
chial discharge would readily succeed.   The event fulfilled
my expectations ; for although the uterine contractions con-
tinued even into the fourth week of her confinement, yet
they daily diminished,—and in proportion as they abated, the
lochial discharge increased ; and it may be judged in what
proportion, when it is stated, that during the first week of
her confinement, the discharge was so little, that she did not
need more than three changes of cloths at the *vulva ;* but
the necessity for them became more and more frequent, so
that in the third and fourth weeks, a change was requisite
every day.   Nor let it be imagined, that an increase of the
lochia was an occasion of the diminution of the pains, and
not the latter the cause of the former ; for in her former ly-
ings-in, there was no want of a lochial discharge in any in-
stance, notwithstanding the severity of the after-pains.

2. After the blood-lettings, which did by no means ap-
pear remarkably to debilitate my patient, she convalesced in
other respects, as regularly as she did in regard to the after-
pains and the lochial discharge ; her sleep, after a few nights,

became refreshing ; her tongue, which had been coated, assumed a healthy appearance ; an appetite for food returned ; and the tenderness of the abdomen went off.

3. After the birth of the child, and the expulsion of the secundines, the uterus contracted as regularly and as speedily, except so far as the contraction seemed to be in a high degree spasmodic, as is common after parturition in the most favourable cases ; and nothing remarkable occurred in the character of the lochial discharge, first or last, except its paucity, as has been already stated.

4. During convalescence, besides the opiates, a few laxatives were occasionally employed, including a few grains of calomel, which latter promptly but slightly, affected the salivary glands.

5. My patient bore a full-grown, healthy, female infant ; which she nursed, and had, after a few days, a plenty of milk for that purpose. For several days at first, when she attempted to nurse her child, it would occasion a recurrence of the pains ; which I know was nothing extraordinary, and I merely state the fact for the purpose of adding, that, contrary to common experience, the most gentle laxatives would produce the same effect ; and that the increase of the pains on the Sabbath, as mentioned in the narrative, was probably owing, in some measure, to a laxative taken early that morning ; by my direction, however, given the preceding evening, before I left her.

6. It is proper to add, that in the treatment of the foregoing case, the medicines were not thrown into the stomach at random, and without method : they were exhibited by themselves, or in combination, and at such intervals, as to give each one a fair trial, before it was discarded, and another resorted to.

7. What would have been the effects of a large dose of calomel, say from thirty to sixty grains, administered in the preceding case ? Such a dose of calomel is a medicine of no inferior power as an anodyne, as I have often proved in obstinate cases of colic, attended with constipation ; and combined with opium, I should have considered it the best me-

dicine that could have been given in the preceding case, were it not for the inconvenience of a salivation. In colic, such a dose of calomel is less likely to produce a salivation, and such an effect is less to be dreaded, than in the puerperal state.

8. I know that castor was formerly considered, and is, perhaps, at present, by some, what has been called a 'driving' medicine ; but it was given, in the preceding case, entirely with a view to its antispasmodic effects : given in a sufficient dose, say from ten to thirty grains, and in substance, I have long since, and often, proved it to be possessed of no inferior powers as an antispasmodic.

9. What would have been the effects of warm water, or warm oil, simple, or medicated, injected into the uterus by means of a proper apparatus, in the preceding case.

10. Could the ergot have done any good, administered in the preceding case ? I am decidedly of the opinion it could not ; for if ' the tendency of its operation is to constringe the uterine fibres, and lessen the calibre of its blood vessels,' as has been suggested, and is probably correct,—it must be allowed to be very ill adapted, I think, to the circumstances of the case above narrated.

11. In the preceding narrative I have but imperfectly described the distress of my patient ; but as this communication has been already extended, I fear, to an unreasonable length, I will only add, that before blood-letting, her distress was so great, that I was seriously apprehensive of epilepsy, or some other form of general convulsions.

Lynn, March, 1827.

V. *Case of Cynanche Maligna.* Communicated for this Journal, by Dr MILO L. NORTH.

MESSRS. EDITORS,—In deep perplexity I have come to a resolution to state to you the following case, in hopes that you, or some of your correspondents, will have the goodness to afford me and others that may be in similar circumstances, some clue to its successful treatment.

Yesterday (Feb. 17th) I was called to a child two and a half years old, with the following symptoms. Pulse, about 134, and so feeble as to be counted with difficulty. Face, rather flushed. Tongue, slightly furred. No unequal distribution of temperature, nor unnatural heat. Great dyspnœa, attended with cough, sonorous respiration, and rattling of loose phlegm. From an indescribable expression of countenance, which I had observed in similar cases, together with some swelling about the throat, I immediately suspected that with this very formidable disease of the bronchial system, there existed *ulcerated throat,* and, on inspecting the fauces, my fears were confirmed. The extent and colour of the sloughs, and the appearance of the surrounding mucous membrane, would not have prevented some hope of the child's recovery. But, in reflecting on the additional disease of the lungs, and comparing this case with others of a similar character that I have witnessed, I expressed to the parents very little hope. This was the third day of the disease. She had taken an emetic of ipecac. the preceding evening, to be followed with a decoction of the root of marsh rosemary, containing eight drops tinct. opii camph. every three hours.

Being six or seven miles from home, and nearly as many from any apothecary's, I made the following prescription, as the best I could then furnish :—

   ℞. Carb. ammoniæ 12 grs.
    Rad. valerian ʒss.

Infuse the valerian in half pint of water, and when cold add the carb. ammoniæ, and bottle for use. Dose, ʒss. every two hours. Sinapisms to the feet and throat. An epispastic to the chest. Small doses of Ol. ricini and tinct. rhei. comp. to be given once in three hours till one loose movement. In case the child appeared to be filling up with loose phlegm, administer five grains ipecac. in a little warm water.

On visiting the patient this morning (18th) I found she had taken the oil mixture twice, and had had two loose movements last evening, and one this morning. The blister had drawn in the usual time, and discharged considerable serum. Aspect of the blistered surface rather dark.

The anxious parents had administered two emetic powders which had thrown up mucus and bile, and for a while relieved the respiration. Cough, still croupy, and more frequent. Respiration, nearly the same as yesterday, except the head being drawn back. Tongue, rather more coated. Countenance livid. Eschars not increased. Pulse could not be counted. Patient very restless. Spake only in a whisper. Took some notice of things around her. Took medicines well. Quantity of saliva spit out from the mouth much as usual in cases of cynanche maligna. With but faint expectations of a favourable termination of the case, I prescribed the following :—

> R.   Rad polygalæ senegæ ℥ss.
>   Rad serpentariæ virg. ℈ij.

Infuse in half pint of water, in a covered vessel, for one hour. Strain and sweeten with ℥ss of honey. Give the patient ℈ij every hour. Give also ℈ij of the infusion of val. and ammoniæ, prescribed yesterday, every two hours. If the patient has much heat, omit the latter medicine. If pale and cold, add ℥ss of hot sling to each dose. Sapo ammoniæ to the throat. Repeat the sinapisms to the feet.

Feb. 19th. On entering the room this morning, I perceived that respiration was accompanied with less noise and labour, and that the patient's head was not thrown back. Countenance not quite so sunken. Sloughs not increased. Tongue less furred. Pulse was distinctly counted 131. No movement of the bowels. Patient not quite as restless. Complexion of the blister the same. Notices things as yesterday. Takes no food. Infusion of valerian and ammoniæ omitted twice yesterday, P.M. Hot sling given twice in the night. Slept most of the night. Secretion of saliva and mucus diminished ; 'there being no spitting nor rattling of loose phlegm. Continue the medicines as yesterday. If there is much heat or pain of the abdomen, a laxative enema.

Feb. 20th. Appearance of the child much as yesterday. Pulse 112 and feeble. Countenance livid. Has taken some food. Breathing tolerably easy most of the night. (I

forgot to mention that, yesterday morning, she swallowed a pin.)   Continue the medicines.

Feb. 21st.   The patient was quite restless through the night.   Appeared to have perfect possession of its faculties. Took all the medicines.   Death-like countenance this morning.   Breathing much as yesterday.   On being offered the medicine this morning at 9, she extended her hand, took and swallowed it.   She then asked her father to sing, as she had often done before.   In five minutes she ceased to breathe without a struggle.

Feb. 24.   I feel it a privilege, Messrs. Editors, while anxiously weighing the event of this case, to appeal to you, or through you, to some of your correspondents for a rational explanation of this formidable disease, and for a more successful mode of treatment; or, if we are doomed to witness one half or two-thirds of our little patients sink into the grave with this complaint, while using the most approved remedies, let us be awake to the fact, and let us make a distinct call upon the medical community to bestow on it some attention proportionate to its importance.   Probably ten persons fall victims to this disease, where there is one that dies of hydrophobia or tetanus; yet these last have been brought so often before the public, that every tyro in medicine knows all that is to be known respecting them. The disease in question is truly a disease of New England, and is frequently taking two or three fine children from the same family.   Will not some of your readers *come out*, and say something from their own experience for the benefit of the profession ?   Such a communication, I conceive, would confer a more substantial benefit upon us than the relation of a dozen marvellous cases.

1 am aware there are different sentiments respecting the treatment of the simple disease of cynanche maligna.   But no matter for that.   Let us hear of a successful mode of treatment, as applicable to a definite form of the complaint, and the great desideratum is obtained.   Now, the question I have to ask is this :—Had I, at the commencement of the above case, administered one or two emetics, and a very

gentle laxative, and immediately commenced the use of to-
nics with acrid expectorants, would this have increased the
danger of suffocation or infusion into the lungs? Or, in
other words, would an attempt to obviate the tendency to
gangrene, by a vigorous prosecution of tonics be contra-
indicated by the co-existing state of the lungs? Suppose, for
instance, the child had taken every two hours a strong de-
coction of cinchona, serpentaria, and tincture of cantharides,
alternated with a very strong infusion of seneka or capsicum?
Would the sulphate of quinine promise any thing in the case?
It was evident that in the above child (with very feeble
pulse let it be remembered) the respiration improved under
the use of seneka, serpentaria, and carb. ammoniæ. The
child breathed more easily the night before she died, than
when I first saw her; and from the ease and suddenness of
her exit, I could not but suppose that the diseased condition
of the system, of which the gangrene in the throat is simply
the index, was the predominant cause of her death.

Feb. 27. I yesterday had an interview with an experi-
enced medical friend, in whose discrimination I repose very
high confidence, and stated to him my perplexities. He
said he knew of none of his brethren who could be con-
sidered successful in this form of disease. He lost several
patients himself last season; three in one family. The
worst cases that had ever recovered in his practice, he said
were treated with repeated emetics of an acrid kind. He
relied more on these than on all other medicines. He had
used the tartarized antimony, sulphate of zinc, sulphate of
copper, ipecac. and calomel combined, and was particularly
attached to the turpeth mineral (sub-sulphas hydrarg. flav.) I
do not recollect, whether he had in any case used tonics as
a leading article in his prescription. He said he should ex-
pect much from a strong decoction of seneka as an emetic,
but had never tried it. With feelings similar to my own,
he had consulted, very lately, a physician who stands high as
a lecturer in one of our medical institutions, and found there
was no essential difference in their opinions or plans of
treatment.

Ellington, Connecticut, Feb. 1827.

[Under the head of Selected Papers, we have published a case, to which we beg leave to refer the writer of the preceding paper.—Ed.]

VI.   *Case of Cellular Inflammation of the Arm in an Infant.*   Communicated by J. Greely Stevenson, M.D.

A. F. born January 22d, of healthy parents. Labour natural, speedy.

Jan. 31st, 12 M. The infant is fat, hearty, and has been in perfect health until yesterday afternoon, when he was observed to keep his right arm motionless, and this was found to be slightly red and swollen. The swelling continued to increase, and, a suspicion arising that the arm was dislocated, my advice was asked this morning.

The child has not suffered any violence. The right arm lies motionless ; the hand prone ; there are a bright redness and great tumefaction for a half inch above and below the elbow-joint ; the crease about the joint is not effaced, but is deepened. There is great soreness to the touch, and the child cries much. Bowels open ; discharges green and black ; little appetite. The pulse and tongue do not indicate any unusual irritation.

A dose of magnesia was prescribed, and a weak lotion of the liquid subacetate of *lead was directed* for the arm.

6 P.M. The inflammation is not at all diminished. Three powders of calomel and magnesia were ordered to be given with intervals of four hours, and lead poultice was applied to the arm at *bed-time.*

Thursday, Feb. 1st. The inflammation has extended both upwards and downwards. The skin is tense and exquisitely sensible. No discharge from the bowels has followed the administration of the powders.

Apply two leeches to the sound skin, and give *castor oil* until the bowels are moved.

3 P.M. The whole arm and hand are greatly swollen ; skin deeply red, with some purplish spots. The swelling is invading the shoulder and breast. Two water-blisters have

appeared upon the abdomen.   The respiration is rapid ; the sensibility and strength diminished ; he refuses the breast.

Apply pledgets wetted with olive oil, and give infusion of serpentaria.

8 P.M.   Dr Channing came in consultation.   Great exhaustion.   The respiration, which has been very rapid, is more laborious.   The face has a violet hue, and the extremities are cold.   The colour of the arm is deepened.   Several discharges from the bowels have been produced, of a greenish colour, not of an offensive smell.

Continue the infusion of serpentaria, and give laudanum in suitable dose, to be repeated as pain or distress may require.   Apply to the arm pledgets wet with a mixture of *olive oil and the liniment of soap* and opium.

Friday, 5 A.M.   Death without a struggle.

Examination eight hours after death.—The swelling of the arm was enormous, and extended from the shoulder to the ends of the fingers.   These were rigidly flexed, and the hand was drawn aside by the action of the ulnar muscles.   The skin was of a dark red colour, except about the fingers and back of the hand where it was white, imitating wax.   Two or three violet-coloured spots were upon the fore-arm.

An incision was made through the integuments, along the line of the inner edge of the biceps, from the axilla to the wrist.   The cellular tissue was remarkably firm, and had a granulated appearance, the arrangement of the adipose substance resembling the disposition of the seeds in a pomegranate.   It was much loaded with serum, which was effused in such quantity as to require the frequent application of the sponge during the whole examination, and to exude abundantly after the arm was sewed up.

In the arm, the cutaneous veins were diseased from the axilla to the elbow-joint ; their coats were hardened, and their calibre contained a brownish pus.   There was some appearance of a layer of coagulated lymph on their internal coat.   The venæ comites presented a like structure and contents.   The state of the arteries was natural.

On dissecting the integuments up from the fascia of the

fore-arm, the portion which covers the flexor muscles was seen tense and bellied.   Beneath it was a diffused collection of pus, reaching from the elbow-joint to the palm of the hand, and of a brown colour, and ill-conditioned.   The muscles were soft, and as it were amassed.   The veins here did not contain any pus, and the appearance of the arteries was natural.

NOTE BY THE EDITORS.

Since receiving the foregoing case, the January number for the present year, of the London Medical and Physical Journal has come to hand.   It contains a paper on 'cellular inflammation,' by Mr Henry Earle, to which disease Dr Stevenson's case seems to belong.   Mr Earle objects to the term *phlegmonous erysipelas*, a name which is singularly appropriate, as we think, to the disease.   We have referred to Mr Earle's paper, because it gives an account of a mode of treating this inflammation, which has been found very successful.   How far it might have proved useful in the above case, it is impossible to say ; but the facts in the case would seem to warrant the conclusion, that little could have been looked for from any treatment.   The patient was but eight days old ; the swelling was most rapid in its progress, and soon involved the chest and shoulder ; vesications occurred on other parts of the body; the respiration was laborious ; the breast was refused ; and a state almost comatose followed the cries which were uttered on the invasion of the disease.   During the dissection, and while observing the great firmness of the integuments and *granular* appearance of the fat, a circumstance noticed by Mr Earle ; and especially, when the deep suppuration was discovered, a question arose if the best treatment of such cases would not be extensive and deep incisions in the limb affected.   This question seems abundantly answered, and in the affirmative, by the success Mr Earle has met with since he has adopted the treatment by incision.   We make some extracts from this paper, beginning with the reference to an article in the Medico-Chirurgical Transactions, by Mr Copland Hutchinson, who had before recommended the same treatment.   We

also extract a case, in which the disease occurred *without previous injury.* Many others are stated; and a very interesting one, in which cellular inflammation occurred from the prick of finger during dissection. The disease had well nigh proved fatal, before the incisions were made. Great relief followed at once on the operation, and ultimately recovery.

'The treatment best suited to this formidable affection, (which, if adopted in time, seldom fails to arrest its progress,) is the one which has been recommended by Mr Copland Hutchinson, in a paper published in the Medico-Chirurgical Transactions; to the real merits of which I can bear most ample and satisfactory testimony. This treatment consists in making very free longitudinal incisions, if possible before suppuration has taken place, through the swollen inflamed integuments down to the fascia or muscles. The vessels of the skin should be allowed to bleed freely, and even encouraged by warm fomentations; the limb should then be enveloped in a warm bread-and-water poultice. A large dose of calomel, antimony, and opium, should be administered; and after some hours the patient should be freely purged with senna and salts, or some other active aperient. If the incisions be made sufficiently large and deep, the relief is very speedy, and it is seldom requisite to repeat them. In a few hours I have witnessed the subsidence of tension and pain, the nervous system tranquillized, and the secretions restored.

'Objections have been raised against this practice, on the ground of the impropriety of inflicting fresh injury on parts already inflamed. This certainly appears very specious; but facts are obstinate, and many, which are well authenticated, can be produced to prove the fallacy of the arguments and the efficacy of the practice. Again, it has been contended that this mode of treatment was rude, and not adapted to civil life. To me this argument appears so puerile as hardly to merit a reply. If by bold and decided measures we can arrest the progress of a most formidable and rapidly destructive disease, surely it is our duty to employ them for the benefit of all alike:—disease makes no such distinctions of rank, and why should the surgeon?

'If any additional reason were required in support of this practice, besides the rapid and almost certain relief which it affords,

we shall, I think, at once be reconciled to it, when we consider that by these very incisions we are most probably preserving the integuments from sloughing, and rendering it unnecessary to make far more extended wounds, which we should otherwise be compelled to have recourse to, after allowing the disease to run its course.   And further, in making these incisions at an early period of the complaint, we are enabled to select those parts for dividing the integuments where there is least hazard of wounding any vessels or nerves of importance.   The incisions should be made from three to six inches in length, in the long axis of the limb, which will best remove the distressing tension.

‘ The rationale of this treatment appears to be the relief afforded to the immediate seat of the disease, which consists in a state of acute inflammation of the cellular membrane, a part endued with low powers of vitality.*

‘ I am well aware of the heavy responsibility which a surgeon incurs in adopting, in the early stage, this bold and apparently severe treatment, before the necessity for it may be obvious to the patient or his friends ; but this is a responsibility which must often attach to medical men in the performance of their duty, and it is one which no man competent to the exercise of his profession should ever shrink from.   Let the surgeon first qualify himself for the performance of his painfully anxious vocation, by patient and laborious investigation of original facts, and then let him discharge his duty fearlessly, and to the best of his abilities.   I should be very sorry to be misunderstood, or to mislead others.   Let it not be supposed that I am an advocate for making incisions in every case of erysipelas attended with swelling of the limb.   Certainly not.   But, in this particular form of cellular inflammation, I feel perfectly satisfied that the practice recommended is beneficial, and is indeed the only method of treatment which is capable of arresting the progress of the disease.

‘ This conviction rests principally on the evidence of cases which have occurred at St Bartholomew’s Hospital, several of which are of very recent date.   Before proceeding to detail some of these

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* We often have opportunities of witnessing the comparative vitality of the skin and subcutaneous tissue, not only in this disease, but in herpetic ulcers and other complaints, where this structure perishes much more extensively than the superincumbent skin.

facts, I will add one more remark.   As the treatment recommended in these cases is bold and severe, it is of the utmost importance to discriminate accurately between this peculiar affection and the more common forms of erysipelas.   To obtain this knowledge, we must make observations at the bedside of the patient: no verbal description, however correct, can convey that impression which " the faithful eye" and touch will alone impart.   The disease, once fully recognised, cannot easily be mistaken.

'I subjoin some cases which have lately occurred, and which have been drawn up by the gentlemen who conducted the treatment under my superintendence.'

The following case was communicated to Mr Earle :—

'*Case of Cellular Inflammation, in which an incision was made, which extended from an inch below the great Trochanter to within an inch and a half of the Ankle.* (Bridgewater Infirmary.)

'September 14th, 1822.—Elizabeth Parsons, ætatis twenty-seven, a young woman of a plethoric habit, was suddenly seized with a violent pain on the outer side of her right knee, whilst engaged in her usual occupation, that of house-maid in a gentleman's family. This pain continued for two days to increase, during which time there came on considerable swelling and inflammation, extending up the thigh and down the calf of the leg, attended with much fever and other constitutional disturbance.   She was confined to her bed, was cupped and had leeches applied, and suitable medicines given.

'On the sixth day, it was discovered on examination, that matter had formed on the outer side of the knee, where the patient first complained of pain.   It was therefore judged expedient to open the abscess; which was accordingly done by making a small puncture with an abscess-lancet, by which about four ounces of thick pus were evacuated.   This, however, did not afford her the anticipated relief.   The inflammation of the leg and thigh went on. Poultices and fomentations were applied, and, although the discharge from the puncture was considerable, the pain and constitutional disturbance continued: the latter, indeed, rather increased.

'On the tenth day, a probe, twelve inches in length, was passed into the wound in a direction downwards, and it was found to extend

to within an inch and a half of the external malleolus.   It was then taken out, and its course directed up the outer side of the thigh; and in this direction the extent of the sinus could not be reached. The surgeon, considering a free incision as the most probable mode of relieving the constitutional symptoms, as well as of checking the sloughing of the cellular membrane, proceeded to lay open the entire extent of the sinus downwards, to within an inch of the external malleolus.   The whole of the cellular membrane of the leg was found to be in a sloughing state.

' On the following day, a free division of the sinus, extending upwards, was made to within an inch of the great trochanter of the thigh.   The immense extent of the wound gave to it a very formidable appearance, particularly as all the cellular membrane was in a sloughing state, so that the finger could, in some parts of the thigh, be nearly passed round between the muscles and integuments.   The patient was supported with wine and a generous diet.

' Before two days had elapsed after the operation, the benefit resulting from this free division of parts was manifest, both locally and constitutionally; every thing assumed a most favourable aspect; and within a day of ten weeks from the division of the sinuses, she left the Infirmary with the wound perfectly healed, with the exception of a small place about the size of a sixpence, and an œdematous state of the limb.'

Section II.—Selections, with Remarks.

VII.   *Identity of Angina Maligna and Croup.*

[We have published, in another part of this number, a case of fatal angina maligna, communicated by a respected correspondent; and with a view to meet some of the questions proposed in that paper, offer the following extracts to him, and to our readers.

A work of a good deal of interest appeared last year in Paris on the identity of angina maligna and croup.   The author is Dr P. Bretonneau, a distinguished physician of Tours.   This work, which we have not seen, is reviewed in the October number of the Me-

dico-Chirurgical Review of London, 1826 ; and from this we have extracted a case or two, and selected the following respecting the treatment of angina maligna, and croup. We have never been anxious to crowd our pages with practical novelties, unless when well supported by the characters of those who bring them forward. The author, in the present case, seems well worthy of confidence. A very curious coincidence, both theoretical and practical, exists between Dr Bretonneau and Mr Mackenzie of Glasgow. In a late number, we published some account of the views of the latter. Our readers may recollect, that Mr Mackenzie recommends for *croup* the application to the fauces and neighbouring parts of a solution of the nitrate of silver. He assures us that this was a powerful auxiliary in the treatment of the disease. We offer no opinion on the doctrine of Dr Bretonneau, on the identity of angina maligna and croup, and only add that his treatment, as he alleges, was successfully employed in the first disease, and in croup which accompanied or followed epidemic angina maligna.]—Ed.

Case 2.—A child, eight years of age, was brought to the Orphan Hospital, with pale and leaden complexion, depressed expression of countenance, loss of voice, quick weak pulse, fetid breath. The child had complained of sore throat for some days, together with a little difficulty of breathing. On inspection, all the soft parts about the back of the mouth were of a grey colour, and apparently sphacelating—one of the tonsils was almost detached, being only suspended by some cellular membrane. Although no hope of recovery was entertained, a sponge impregnated with hydrochloric acid was pushed into the fauces. Next day the symptoms were surprisingly mitigated, and membraniform sloughs were detached. The same topical application was reiterated, and the child rapidly recovered. From the appearances which the fauces presented before the acid application, it was presumed that disorganization had gone on to a considerable depth in the soft parts ; yet to the astonishment of the medical attendants, when the sloughs were thrown off, the mucous membrane of the parts underneath was found to be in a state of integrity.

It is hardly necessary to state that the method of treatment above described was now generally adopted, and with the best success. The following case will show the danger of discontinuing the topical application too soon.

Case 3.—A child, seven years of age, was brought into the general Hospital of Tours, (ward No. 4,) with sore throat, slight fever, the right tonsil a little swelled, with a white spot on it, which disappeared after the second application of the muriatic acid.   Four days passed, without any thing particular occurring, the child denying that its throat was sore, lest the acid application should be renewed.   But at length the difficulty of deglutition could not be concealed ; and, on examination, it was found that the whole of the fauces were of a grey and marbled colour—the cough being frequent, and the expectoration copious.   The topical application was renewed.   Next day the voice was much affected ; and the day after, it was entirely extinct.   The cough was stridulous, with dyspnœa, sibilant inspiration, fetid breath, pale livid countenance.   In the night the dyspnœa increased rapidly, and death took place on the third day from the relapse.

Dissection.—The parietes of the pharynx were covered with eschars, and in the trachea was found a complete membranaceous tube, white, elastic, consistent, and feebly adhering to, or rather spread over the subjacent mucous membrane, from the rima glottidis to the minutest divisions of the bronchia.   When this false membrane was removed, which required no force, the tissues underneath, both in the fauces and air-tubes, were perfectly free from any gangrenous appearance, exhibiting only some red patches, without any approach to erosion or thickening.

Treatment.—Dr Bretonneau believes that real diphtheritic inflammation or croup is rarely susceptible of a natural cure, in consequence of the constant tendency of the coriaceous inflammation to spread along the mucous membrane, without leaving the parts originally occupied.   The rapidity with which the disease expands itself over parts so essential to life, has given rise to a multiplicity of remedies administered in a tumultuous manner, and too often without success.   Our author avers that the fatality of croup is not owing to its violence, its destructive activity, nor any fluxionary movement towards the aeriferous tubes, but to the accumulation in those tubes of an inert secretion, the product of a superficial inflammation, which accumulation ultimately destroys the function of respiration, and occasions death.   It need hardly be stated that this opinion applies solely to the disease under consideration, and not to a number of minor or different affections which simulate real

diphtheritic croup. It will appear a somewhat staggering propo-
sition of the author, when we find him declare that in this disease,
neither bleeding, nor leeching, nor blistering, nor vomiting, nor
purging will do any good—and that topical treatment is almost the
only thing to be depended on—especially at the commencement of
the disease.

'I am forced,' says Dr Bretonneau, 'to declare, contrary to the
received opinion, that bleeding in croup has done harm, and acce-
lerated rather than checked the spread of the coriaceous inflam-
mation. I did not abandon this measure till after reiterated proofs
of its injurious effects.' The same is said of local bleeding and
blistering. The topical treatment alone (with the exception of ca-
lomel internally, of which we shall presently speak) was the only
thing that appeared to do any good. Various external applications
are spoken of by our author, with very little approbation, till he
comes to the hydrochloric acid, fumigations, and calomel.

Hydrochloric Acid.—This acid, when applied, in a concentrated
state, to a sound mucous membrane, causes a coriaceous or pelli-
cular inflammation. A slight superficial touch blanches the epithe-
lium, which is detached and renewed without erosion. But if the
action of the acid is prolonged, or its application renewed at short
intervals, it produces an ulceration covered by a whitish concre-
tion, which requires a longer or shorter time to cicatrize. It is
necessary to be aware of these facts when we · have recourse to
this acid with the view of modifying the diphtheritic inflamma-
tion, in order that we may not confound the phenomena of the re-
medial process with those of the disease. *The best plan is to let the
first applications be energetic, and not too frequently repeated.* Dr Bre-
tonneau has tried various modes of applying the acid to the pha-
rynx and tonsils, and the following is that which he prefers. A
piece of fine sponge is to be securely fixed on the end of a flexible
whalebone probang, which is to be bent to a convenient form by
heating and softening it in warm water. The sponge is to be dip-
ped in the *concentrated acid,* and then gently pressed, so as to be
left just moistened with the fluid. This precaution is necessary,
lest, in the convulsive movements of the palate, some acid should
be diffused beyond the parts designed to be cauterized. By these
means it is easy to apply the acid, and to graduate its strength by
various proportions of honey. When thus diluted it spreads be-

yond the part with which the sponge first comes in contact, and is only to be used in this manner, when the diphtheritic inflammation has gone beyond the reach of the eye, in its progress downwards.

The first effect of this topical treatment is to give the incipient inflammation a graver aspect. The concretions appear to be thickened and more extended. In 24 hours the action of the acid will have reached its utmost boundary. If the concretions do not now appear to have extended—or if they are becoming detached, we may prognosticate that the specific inflammation is already modified—and the topical applications need only be made at lengthened intervals, and of a weaker power. For the cases illustrative of this mode of treatment, we must refer to the work itself. It will be sufficiently obvious that this practice can only apply, with any prospect of advantage, to the diphtheritic inflammation, in the mouth and fauces. When the exudation has spread into the larynx and trachea, it is, of course, beyond the reach of sponge and acid. Some other mode of treating the disease must then be pursued.

Fumigations.—Several times, when the diphtheritis had gained the mucous membrane of the larynx ;—when it was no longer possible to apply to it the concentrated or diluted acid—and before Dr Bretonneau had experienced the beneficial effects of calomel administered internally, he tried fumigations of the hydrochloric acid. Every one knows how diffusibly irritating this acid is when in a state of vapour, and how readily it excites inflammation in the mucous membrane of the lungs. This effect is precisely that which Dr Bretonneau wished to produce, in order to modify the specific inflammation by the substitution of one less dangerous, and more easily removed.

Five times this experiment was tried, and with success. In the sixth case it proved fatal. This procedure is, in fact, dangerous and difficult to manage. It was renounced by Dr Bretonneau, as soon as he had found in calomel a resource equally efficacious and much less hazardous. ' There are circumstances (very rare it is true) where the calomel itself may prove a poison; and in such cases it would perhaps be better to try the acid fumigations than to abandon the patient to inevitable death.'

Mercurial Treatment.—After the legion of La Vendée had departed from Tours, their barracks were occupied by the 44th Re-

giment, and in a few days afterwards three of the soldiers became affected with the malignant angina. In two of these, the disease was arrested early by the topical treatment already described. The third was not so fortunate, and was sent to the general hospital, where he came under our author's care. The inflammatory concretion covered both tonsils, and was found to spread out of sight beyond the pharynx. This man was 23 years of age, stout, and previously in rude health. His breath was insupportably fetid —the sides of the neck considerably tumefied—the face flushed— pulse strong and quick—frequent cough, with mucous, transparent, and frothy expectoration. Experience had, in numerous instances, proved the inefficacy of blood-letting in the disease. A mixture of equal parts of honey and concentrated acid, was applied by means of the sponge to the tonsils and adjacent parts. The tone of voice did not, as yet, indicate the formation of false membrane in the trachea; but the abundance and limpidity of the expectorated mucus left no doubt that the irritation and inflammation which precede the coriaceous exudation had already reached the air-passages. It was therefore evident that it imported but little to modify the disease in the pharynx, while it was making progress in the trachea and bronchia. All other general modes of treatment had hitherto failed in this disease, and therefore the mercurial plan was adopted as offering the only chance of success. Three grains of English calomel were administered every hour at first. The tongue, which was covered with a whitish crust, began, in the evening, to moisten, and clean at the point—the swelling of the tonsils was rather diminished—and the fetor of the breath was gone. But the cough was become rough and croupal. Mercurial frictions on the neck, chest, and arms were directed to be employed every three hours through the night. In the morning, no mercurial affection of the mouth had yet taken place. The tongue was still further cleaned than the day before. Membraniform concretions floated in the expectoration, which was copious and semi-transparent. These shreds must have come from the trachea, as the crusts were still undetached from the pharynx. They were in the shape of narrow bands, serrated at the edges, and some of them three inches in length, by two or three lines in breadth. They had not yet acquired the consistence of those false membranes that are formed into complete tubes; but, on accurate exa-

mination with glasses, they were found to possess all the other characters of the croupy exudations. The mercurial frictions were continued, but with longer intervals, and the calomel repeated as on the preceding day. In the evening the cough was less croupy—the expectoration less copious, and more opake, or like pus; but still mixed with a considerable quantity of the croupy concretion. The stools were of a green colour. *3d day of mercurial treatment.* (6th day of the disease.)   Eight frictions had now been employed, and sixty grains of calomel taken internally, but without any indication of mercurial sore mouth. The concretions were almost entirely detached from the pharynx, leaving the subjacent mucous membrane bare and in a healthy condition. The mercurial frictions were discontinued, and the calomel given every two hours. *4th day of treatment.* The pharynx is entirely clean—the expectoration thick and muco-purulent, still containing shreds of the croupy concretion. Three or four evacuations in the 24 hours. The mercury discontinued. One ounce of the strong mercurial ointment, and two drachms and a half of the calomel had been used in the course of about 72 hours. From this time the cough diminished rapidly, and convalescence advanced.

Many cases are given illustrative of the beneficial effects of the mercurial treatment, for which we must refer to the work.

Dr Bretonneau has also a long chapter on the injurious effects of mercury in certain constitutions, and especially where patients have been exposed to wet and cold during or immediately subsequent to the mercurial influence on the system. These subjects need not detain us here, as we are familiar with such effects in this country.

Our author directs the calomel to be given in doses of one or two grains every hour, mixed with sugar, and placed on the tongue. In this manner the mercury acts topically as well as constitutionally, and on the digestive organs. Mercurial frictions are, in the mean time, not to be neglected—' by combining these means, we shall often obtain the most unlooked for success.' The following case is introduced as an example.

Case. F. P. aged 7 years, has complained for five days of sore throat, with swelling of the glands in the neck, fever, &c. On the sixth day the symptoms had rather abated. On the 7th day, the cough became very troublesome, and, towards the evening, it was

croupal, the expectoration copious, glairy, and frothy, presenting fragments of croupy concretion, evidently from the larynx. There was now orthopnœa, sibilant inspiration, alteration of the voice. On examination, it was found that the throat was coated with a croupy concretion, of a whitish yellow colour. *Four grains of calomel were ordered every hour.* After the fourth dose, the expectoration was freer and more copious, and, in a fit of coughing, a membranous tube, three inches in length, was thrown up. The breathing, after this, was more free. Two alvine evacuations. *2nd day of treatment.* The breathing is again very difficult—somnolency—livid tint of countenance—incipient asphyxia. Mercurial frictions, with the strongest ointment, were employed every three hours, on the arms, neck, and chest. There was now great nervous agitation, convulsive cough, and another expulsion of a large quantity of concretion. The anterior portion of the tongue is clearing fast. *3d day of treatment.* The cough is less hard, the breathing easier. *Two grains of calomel every hour.* *4th day.* Ten frictions and 120 grains of calomel had now been used in about 50 hours. The gums were slightly affected—the breathing is still freer—the countenance nearly natural—the expectoration more bland—the voice clearer. In three days more the convalescence was complete, and no relapse followed.

' It is with a facility like this that, most commonly, the calomel modifies the diphtheritic inflammation, even when it has invaded the larynx and trachea. Such, also, is the rapid march of convalescence. But if the patient be exposed to cold, if the mercury be pushed too far, then we have a formidable train of symptoms ensue, and severe ulcerations of the skin and mucous membrane may follow.' In the severe cold of February, 1826, Dr Bretonneau saw these effects produced in three patients who were deprived of the comforts of life, and of sufficient protection against the rigour of the season. When the patient's circumstances are more favourable, the physician may, with common precaution, avoid all the bad consequences of the mercurial influence, and secure to his patient all its beneficial effects.

Tracheotomy.—We now come to an interesting question. Are we, when all medicinal agents fail in giving relief, to sit down quietly and see the patient expire from a mechanical impediment to the function of respiration? Some efforts which have been made

in the cause of humanity forbid this supineness. M. Bretonneau has performed tracheotomy, under such circumstances, in three instances, and in one with success. The Count de Puysegur had already lost three of his children by this dangerous malady, and the fourth was seized with the disease.—*Medico-Chir. Review.*

[The following has some bearing on the points suggested in Dr North's paper. But without this consideration, it contains the successful treatment of a peculiar sore-throat affecting children, which has heretofore, in the hands of practical men, been very unmanageable.—ED.]

VIII.   *Peculiar Sore-Throat affecting Children.*

THE following observations are extracted from a paper in the Edinburgh Journal of Medical Science, by Dr HAMILTON, jun. Professor of Midwifery.

In the last edition of the Hints for the treatment of the principal Diseases of Infancy and Childhood, the following brief notice of an affection of the throat is inserted :—

' There is a very dangerous, but fortunately rare, modification of sore-throat, which begins in the form of a whitish spot, like that of thrush, (though more definite in its shape, being round or oval,) on one or both tonsils, unaccompanied at first by fever, and attended with only a trifling degree of uneasiness in swallowing. By and by this spot enlarges, its edges become of a florid colour ; fever steals on ; and the act of swallowing grows painful. A slough gradually forms, with evident ulceration at its edges ; the fever increases ; and headach and restlessness supervene.

' The partial separation of the slough, together with the rosy colour of the edges of the ulcer, with the moderate degree of fever for some days, promise a favourable issue. But very unexpectedly slowness of breathing, without either difficulty or wheezing, takes place, with excessive and sudden sinking of the living powers ; and it generally happens that, within a day from this change, the fatal event takes place. The breathing at first falls to eighteen respirations in a minute,—then to sixteen,—to twelve,—and finally to ten or eight. Sometimes, with the sloughing, the tonsil swells ; and in some cases both tonsils are affected.

' Hitherto, with one exception, this disease has proved mortal in

every case in which the author has been consulted; and he considers the slow breathing to be a sure symptom of the fatal termination.

'With respect to the nature of the disease, his experience is too limited to enable him to give a decided opinion. He has repeatedly known two individuals of the same family attacked in succession with the disease, but he does not feel warranted in pronouncing it to be infectious.

'It is with feelings of sincere regret that he has to state that no mode of treatment, yet discovered, seems to have any influence in checking the progress of this disease. The most powerful local applications, such as stimulating gargles, the use of caustic, &c., and all the ordinary means of supporting the strength, have, in the cases to which the author was called, been pursued with much anxiety and activity, without any benefit. The operation of opening the windpipe was, in one interesting case, (where, from the swelling of both tonsils, there was apparently a mechanical obstruction to the breathing,) had recourse to without any avail.'

Further experience has convinced the author of these remarks that two other symptoms occasionally attend the disease. The one is a most offensive fetor of the breath, and the other is the sudden occurrence of cynanche trachealis. The former of those symptoms has not been perceptible in the cases he has attended, or on which he has been consulted, sooner than from the sixth to the ninth day after the disease had been distinctly marked; and the latter has hitherto occurred before the sixth day.

Thus this very curious affection proves fatal in two different ways,—viz. by exciting cynanche trachealis, or by inducing slow breathing and progressive sinking of the living powers; and, in repeated instances, these two different terminations have occurred in the same family.

There can be no difficulty in understanding the former of these symptoms; for it is evident that the local inflammation of the tonsils and uvula is, in such cases, extended to the larynx, after having affected the pharynx.

But the other, and (as far as the author's personal observation warrants him to believe) the more common termination, does not admit of such a ready explanation. The partial separation of the slough, the rosy colour of the edges of the ulcer, and the mode-

rate degree of fever, make the slow breathing, which suddenly
supervenes, very unexpected to the attendants; and the rapidity
with which death follows the slowness of breathing has appeared
quite wonderful.   The explanation which occurs to the author is,
that the matter secreted by the ulcer, being evidently of the na-
ture of a morbid poison, may act by paralysing, or otherwise influ-
encing the par vagum, or the branches of the eighth pair of nerves
of the medulla oblongata, on which Le Gallois has proved, by
direct experiment, that breathing depends.

(Here follows some reasoning upon the probability of absorp-
tion.)

If the reasoning thus offered be correct, it should follow that, in
all cases of ulceration on surfaces communicating with the respira-
tory nerves, the physician, in the treatment of the disease, should,
by the most vigorous efforts, endeavour to accomplish two ob-
jects,—viz. to prevent the extension of the local inflammation,
and to lessen the diseased secretion.

The former indication seems, at first sight, the more important
one in the particular and curious disease now under consideration;
for it appears, for some time after the attack, to be merely a local
affection.   Accordingly, means calculated to fulfil this intention
were suggested, and pursued with great energy, in all the cases
till lately to which the author was called.   He was, however,
mortified to find that neither the application of leeches, followed
up by purgatives and blisters, nor the use of topical stimulants,—
such as the various irritating gargles, the application of the nitrate
of silver, and even scarifications, proved in the slightest degree
beneficial.   He was resolved, therefore, to take the first opportu-
nity of ascertaining the efficacy of attending principally to the se-
cond indication: that opportunity has lately occurred, and he now
communicates the result of the experiment.

On Tuesday, June 27, 1826, he was requested by Dr Torrance
(an old pupil) to visit a little boy, aged six years, labouring under
a modification of sore-throat, which appeared to Dr Torrance to
be of a singular character.   The doctor stated that this was the
third child in the family who had become affected with the disease.
The first of these was a girl, nine years old, still alive, but appa-
rently sinking.   She had been ill since the 12th day of June; and,
ten days after her attack, her brother, aged four years, was seized

with the same symptoms, and, after a certain progress, cynanche trachealis supervened, and proved fatal on the 26th of June; so that this little boy was only four days ill.

Before visiting the patient, the description contained in the last edition of the Hints for the Management of Infants and Children was put into Dr Torrance's hands, and he immediately declared that it applied most accurately and minutely to the cases he had been attending, with a single exception,—viz. that the excessive fetor from the ulceration of the throat was not specified in the printed description.

When the state of the little boy was examined, the slough upon each tonsil, larger upon the right than on the left, with a slight swelling of the velum, was strongly marked, but there was no fever. It was ascertained that the first symptom of indisposition had been discovered on the preceding morning, and that he had been treated with great activity,—having had a dose of calomel and jalap, which had operated both upwards and downwards, and having had leeches applied externally to the throat. Besides the attendance of Dr Torrance, the little patient had the benefit of the assistance of two intelligent young gentlemen studying medicine, who lodged in the house; and they, by the by, cordially concurred with Dr Torrance in bearing testimony to the accuracy of the coincidence between the printed description of the disease, and the progress of the symptoms in the children they had attended. The state of the little girl was desperate, and she sunk on the 30th of June.

Agreeably to the views already explained, it was suggested that the great object to be aimed at should be to lessen the diseased secretion from the throat, and with this intention the sulphate of quinine, in as large doses as could be administered, was prescribed. At the end of twenty-four hours it was found, however, that this medicine could not be retained, or rather, perhaps, could not be received in sufficient doses; and, as the ulceration was increasing and fever was stealing on, it became necessary to change the medicine without altering the indication.

Adverting to the extraordinary efficacy of the sugar of lead in restraining passive hemorrhagy, and in lessening secretions depending upon laxity of fibre, it was judged that this medicine might answer the purpose in view, and at any rate that it merited a fair

trial. Eight grains dissolved in eight ounces of rose-water, to which forty drops of tinctura opii were added, were therefore prescribed; and of this half an ounce were directed to be given every three hours while awake. Instead of the stimulating gargle hitherto employed, consisting of capsicum, &c. a solution of the sugar of lead, of the strength of a scruple to eight ounces of distilled water, was substituted. A dose of castor-oil was directed to be given every second morning.

Under this treatment, from which no inconvenience whatever was experienced, the sloughs gradually contracted, and the swelling of the velum pendulum palati progressively decreased, in the course of which it was discovered that the ulceration had extended over the pharynx behind the velum, and the cure was completed on the 16th of July. The medicine was begun on the 28th of June, and was continued till the 14th of July, occasionally diminishing and increasing the intervals between the doses. The whole quantity of the acetate taken during that time was twenty-four grains.

From the cases of this disease which have fallen under the author's notice, he is now inclined to believe that it is infectious. While he has repeatedly seen two children in one family attacked in succession with the disease, he has only known one instance where, in a family of several children, it was confined to a single individual. He may add that, in so alarming and fatal a malady, he considers it the duty of a physician to hold out that it is infectious, and to enforce all the ordinary precautionary measures to prevent its spreading, even although certain doubts of its infectious nature might impress his own mind.

The remarks in the preceding pages are offered in illustration of a general principle applicable to cases of morbid ulceration, which an intelligent practitioner can modify according to the individual instances falling under his charge.

That remedies must be adapted not only to the particular constitutions of the patients, but also to the complications and the degrees of severity of the symptoms, is a proposition generally assented to, but not always acted upon; and yet it is in this art that the talents of an active and intelligent practitioner are chiefly conspicuous. This consideration should lead every physician to avoid forming a prejudice in favour of one or two drugs for the cure of particular diseases. Thus, in some cases of the disease now under

notice, the sulphate of quinine or of zinc, or the ammoniarate of copper, or some of the oxides of iron, or the mineral or vegetable acids with wine, or even some of the preparations of mercury,* may be preferable to the sugar of lead ; but the facility and safety with which that latter medicine can be given, makes it a most convenient prescription for children. In cases of cynanche maligna, a gargle composed of a solution of this medicine might probably be substituted, with much advantage, for the stimulants hitherto employed.—*London Med. and Phys. Journal.*

Section III.—Intelligence.

IV. *Medical Lectures in Harvard University.*

The Medical Lectures in Harvard University will begin at the Medical College, Mason Street, Boston, on the Third Wednesday in October next ; *the time having been altered* from the Third Wednesday in November, at which time they formerly commenced.

WALTER CHANNING,
Dean of the Medical Faculty.

V. *Summer Course of Midwifery Lectures.*

Dr Channing's Summer Course of Lectures in Midwifery will begin on the first Wednesday in June next. For terms, apply to Dr C. at his house in Common-Street.

* In the only case of cynanche trachealis supervening to the cynanche maligna which the author has seen terminate favourably, the boy (four years old) had a dose of calomel every hour while the symptoms continued violent, and at the same time was allowed wine in large quantities.

NEW-ENGLAND MEDICAL

REVIEW AND JOURNAL.

REVIEW.

VIII.

*Sketches of the most prevalent Diseases of India : com-
prising, a Treatise on the Epidemic Cholera of the East ;
statistical and topographical Reports of the Diseases in
the different Divisions of the Army under the Madras
Presidency ; embracing also the Annual Rate of Mortality,
&c. of European Troops : and Practical Observations on
the effects of calomel on the alimentary canal, and on the
Diseases most prevalent in India. Illustrated by Tables
and Plates.* By James Annesley, Esq. Madras Medical
Establishment ; lately in charge of the General Hospital,
Madras, and garrison surgeon of Fort St George.   Lon-
don : T. & G. Underwood.   1825.   pp. 464.

In some introductory remarks to this volume, the author
proposes the following questions : ' 1st. Is there any men-
tion made in the Hindoo medical writings, or in the history
of the countries which have been visited by the present de-
structive disease, of its prevalence in any former age in a
similar form ? 2d. Does the history of medical science fur-
nish any account of the occurrence of cholera, as an epidemic
disease, either in India or in any other part of the globe ?'
The answer to the first of these questions is, that in a spo-

radic and less malignant form the disease has been noticed by Hindoo medical writers. No reference, however, is made by any of them to the *epidemic* disease of which the author treats. To the second question the answer is in amount the same with that to the first. Modern medical history does not contain any reference to an *epidemic* form of the disease. It seems, then, that cholera has, from a very early period, occurred as a sporadic disease in India, and in a severe form. The same thing has occurred in England, and is noticed by Sydenham. Still the author contends, that as an *epidemic* it has hitherto been unknown ; and that, along with its epidemic character, has been conjoined an extraordinary malignancy.

Now, what meaning does the author attach to the term epidemic, which has given it so exclusive an application to the disease under notice ; and which, in some sense, in the author's opinion, bestows upon it a novel character in these later times? An answer will be found in the following, which stands as a note to the sixth page of his volume.

'It may be necessary to state more explicitly the meaning which I attach to the word *epidemic*. The etymology of it merely indicates the general prevalence of any disease. In this sense, almost every disorder may be said to be capable of recurring in an epidemic form. I shall, therefore,—and I believe conformably with the general acceptation of the word,—use it in a much more limited sense. I consider that a disease is truly epidemic, when it attacks great numbers at the same time, and when its general prevalence cannot be altogether explained by the common and manifest causes of temperature and season of the year, &c. without recurring to a certain state of the atmosphere, the nature of which state is beyond our means of ascertaining, and which is independent of the known and palpable conditions of this fluid, as respects its temperature and state of moisture. In this sense, fevers of various kinds, small-pox, dysentery, the cholera of India, scarlet fever, measles, hooping-cough, erysipelas, are epidemic diseases.'

The epidemic character of this disease, using the term as defined by the author, gives much interest to this subject. Some other and unknown circumstances exist, and concur with the known, if not in its production under the precise

form in which it has recently occurred, at least in its very
remarkable progress and extension to remote regions, in
which it has not before been known as an epidemic. What
these circumstances are we know not. But the question is
apposite, may they not be developed in other regions, tem-
perate ones for instance, in which an exalted temperature
exists at some seasons in every year, and during which sea-
sons sporadic cholera more or less violent is known to occur ?
The progress of Indian cholera has been hinted at. This
is a very remarkable fact in the history of this disease. It
had, in the seven years preceding 1825, spread from the
banks of the Ganges and the Indus to the mouths of the
Wolga and the Orontes. In a northerly direction to the
Caspian Sea, and, in its westerly course, it has already ap-
proached Europe, passing over 90° of longitude and 66° of
latitude in one direction, crossing the equator and approach-
ing the boundary of the southern tropic ; and in another
passing through the southern tropic into the temperate zone.
Its mortality has kept pace with its progress. We have be-
fore us unquestionable records of this mortality, and it has
not been exceeded by the ravages of any former epidemic.

These considerations give this subject much interest.
One other only will be now mentioned. The study of this
disease has been prosecuted with great patience and fidelity
by highly respectable men dwelling in the midst of it. A
vast deal of valuable matter has been the result of these in-
vestigations. Various modes of treatment have been tried,
and a very successful one has been the result of these varied
experiments. Our author stands very high among those who
have devoted themselves to the whole subject, and we pro-
pose to offer our readers a condensed abstract of his work.

The following are among the symptoms of epidemic cho-
lera. They are given in the order of the author. The
state immediately preceding the invasion, and preceding it
by a longer or shorter period, is one of anxiety and oppres-
sion and sense of heat at the epigastrium. These symptoms
increase ; countenance becomes anxious and oppressed ;
pulse quickened and always oppressed, and the first stage is
formed. Nausea, vomiting, purging, exhaustion, and irregu-

lar spasmodic contraction of the muscles of the lower and
upper extremities sometimes accompany the above, and al-
ways supervene immediately to them, should they not have
occurred with them.   The matters vomited, and the dejec-
tions, consist of the contents of the stomach and bowels at
the time of seizure.   The quantity evacuated is very abun-
dant ; and from the subsequent feeling of emptiness it would
seem, that the whole had been discharged.   The spasms in-
crease in violence, but though pretty general they seldom
attack the muscles of the back, the loins, and face.   They
begin in the extremities, then attack the abdominal muscles,
and, lastly, those of the thorax and diaphragm.   It does not
seem, that the spasms have any fixed character, being at
times clonic and at others tonic.

‘ With the supervention of spasm, and the evacuation of the ali-
mentary canal, deafness, giddiness, noise in the ears, coldness of
the extremities and surface of the body, are also present.   Great
oppression at the præcordia and epigastrium is now generally felt,
attended by difficulty of breathing, and general collapse of the sys-
tem.   The pains sometimes felt in the abdomen are of a colicky
nature, and these, with the pain accompanying the spasms of the
muscles of the abdomen and of the extremities, are relieved by
pressure and friction.   The skin becomes colder and colder as the
disease advances, and is covered with a cold damp, which increases
to a copious, cold, raw moisture, which bedews the shrunk, sodden
and cold integuments, especially of the extremities.   The counte-
nance now assumes a contracted or collapsed, cadaverous and anx-
ious appearance.   The eyes are sunk in their sockets, and are
surrounded by a livid circle.   The pulse becomes first small, quick,
oppressed; and afterwards it scarcely can be felt at the wrist.
Blood taken at this period is quite black, thick and oily, and it
frequently will not flow from the vein.   The arterial blood also
presents the characters of that usually circulating in the veins.
The patient all the while complains of a burning sensation about
the epigastrium and umbilicus, and of an unquenchable thirst.
The tongue and mouth are, however, moist, cold and white.   The
vomitings and stools are now frequent, and consist entirely of a
fluid resembling rice-water, with mucous flocculi and albuminous
matter floating in it.   Sometimes these matters are muddy, turbid,

and somewhat different in colour; but they are always without any admixture of bile. As the disease advances, these evacuations become less and less frequent, and sometimes subside for a considerable time before the death of the patient. The same may be said with respect to the spasms. The urine seems not to be secreted, and not only it, but even the saliva, and all the glandular secretions, appear to be completely arrested during the continuance of this dreadful malady.

' As the disorder advances, the eyes and other features become more sunk, and the corneæ assume a flaccid appearance. The extremities are perfectly cold, covered with a cold, clammy moisture, and their surfaces sodden and corrugated. The voice becomes feeble, sepulchral, and unnatural; the respiration more and more oppressed, generally quick, and sometimes slow; and the air which the patient expires is cold. During this state, restlessness is generally observable, and is sometimes very urgent; the patient tosses about continually, and evinces the utmost distress.

' Although the patient is listless, impatient of disturbance, averse from speaking, and is altogether physically overwhelmed, still he retains his mental faculties to the last hour of his existence.

' Towards the termination of the attack, the sense of anxiety at the præcordia and epigastrium seems to increase. The restlessness appears to degenerate into a kind of jactitation; the vital actions gradually sink, and, at last, entirely disappear; and the patient dies, generally, within twelve, fifteen, twenty, or twenty-six hours from the invasion of the disease.' pp. 19—22.

In all diseases, and more especially in those of a grave character, the earlier their true character is understood, the better. In most cases we see diseases fully formed. The symptoms of access rarely attract the attention of the patient or his friends, and a period of uncertain length passes from the invasion before the whole disease manifests itself, or medical attention is directed to it. In the majority of diseases this is not a great evil. In many it is of slight consequence. But in that, which we are now considering, it is of the greatest moment, that the earliest precursors be known and a proper treatment adopted. This circumstance has led Mr Annesley to devote a separate section to the consideration of the symptoms of invasion of the epidemic cholera.

He first directs our attention to the countenance of the patient, for this will betray the peculiar anxiety before mentioned, even before the patient is at all aware of his state, and when his answer to a question about himself will be, 'very well.' The countenance, in another part of the work, is said to be at first pallid, anxious, and sorrowful; becoming dejected and sunk in the advanced stages. If, however, he be strictly interrogated, he will acknowledge feelings that are not healthy, but which he cannot describe. His spirits will be found somewhat depressed, his skin clammy, and his pulse labouring, and oppressed. This is the moment for the hopeful uses of art. It is now that most may be done. Bleeding, promptly used at such a moment, has been attended with the happiest consequences. The state of the abdominal viscera deserves much regard in this stage. We have spoken of the frequent and full evacuations that may take place; but pressure will not detect the actual presence of the disease. The whole state of the patient demands careful attention, and in this we shall find a prevailing and great exhaustion, which we can hardly explain by any thing present, especially when we recollect that a few minutes before he may have been active and about his ordinary duty. The urine is in small quantity, and but seldom voided at this time.

Some of the writers on this disease offer a different view of its approach. Thus, Mr Scott thinks it attacks without any premonitory symptoms. He says the invasion is sudden, and that precursory symptoms are entirely accidental. Our author notices this opinion; but, from a vast observation of the disease, and from numerous authorities, he contends for the correctness of his own views, and does this, not so much from devotion to an opinion of no practical importance, but because he believes it of the last consequence to the proper treatment of the disease. The symptoms of the second or advanced stage are first noticed as they occur in the stomach and bowels. Vomiting and purging of a fluid resembling rice water, with white flocculent matter floating in it, come on. Very rarely is there any bile in the stools, in this stage. Then cramps in the parts before named come on.

'The skin is generally cold, and covered with a cold, clammy
dew. There is scarcely any pulse at the wrist, and, if it be at all
perceptible, it is small and thready, and generally quick; but it
sometimes gives the sensation to the finger of oppression. The
extremities are cold, livid, and shrunk. Sometimes there is con-
siderable heat about the chest and epigastrium, and the head is in
general hot. The tongue is not particularly foul, though, at times,
it is covered with a thin coat of glairy mucus; and, at other times,
it is dry and white, having the appearance of being without blood;
but it is not furred. The lips are cold and blue. The fluid stools
are generally discharged from the bowels with a considerable de-
gree of force, as if they were ejected from a syringe; but they are
generally not accompanied by any pain.' p. 32.

In this stage no urine is voided, and the author believes
the functions of the kidneys are suspended. The state of
the superior extremities is particularly described. The
hands and fingers are shrivelled, as if they had been soaking
in warm water for a considerable time. The nails are blue,
and sometimes the whole skin has a blue cast. Prostration
of strength is now excessive; the thirst insatiable, and along
with this there is generally inward heat and a burning pain
about the umbilicus.

' *Diagnostic Symptoms.*—There is no symptom of the disease more
uniform than the black, thick, and ropy condition of the blood
taken from a patient in the epidemic cholera, particularly when
the disease is fully formed. This condition of the blood, of which
the arterial blood also partakes, is, even of itself, and still more
particularly when viewed in connexion with the other symptoms,
sufficient to distinguish the disease from the cases of sporadic cho-
lera formerly occurring in India, and from the cholera usually ob-
served in warm climates, or in temperate ones during the autumnal
season. The low and exhausted state of all the vital actions, the
depression of the patient's spirits, the unnatural appearance and
cold, dewy condition of the surface of the body; the withered and
cold state of the extremities, the extension of the spasms, so early
in the disease, to the muscles of the superior extremities and
chest; the entire absence of bile from the stools and the matters
vomited, the suppression or interruption put to the secretion of
urine, and to all the other natural secretions; the early depression

of the action of the heart and of the pulse; the coldness of mouth, tongue, and respired air,—are phenomena which we find not similarly congregated in any other disease, and which are sufficient to distinguish it from the other species of spasmodic diseases in general, and from the bilious cholera, and even from the *mort de chien*, or more violent form of the cholera commonly observed in India, in particular.

' The clonic nature of the spasms, the manner in which they attack the extremities and abdominal muscles, and their uniform absence from the muscles of the back, loins, and face, are circumstances sufficiently serving to distinguish epidemic cholera from tetanus and trismus. The copious evacuation of the bowels and stomach, the state of the pulse and surface of the body, and the sensation felt, so early in the disease, at the epigastrium, serve to shew that it cannot be confounded with colic. As bile is seldom if ever met with in the severer cases of the common cholera of India, until the violence of the disease is diminished, or medicines procure the flow of it into the intestines; and as the general phenomena of the disorder are so nearly allied,—it may be proper to allude, at this place, to the points of dissimilarity existing between it and the epidemic form of disease. But here I may also admit, that a number of the phenomena characterising both differ chiefly in the greater malignity of those appertaining to the latter malady and in the rapidity of their progress to a fatal termination. The absence of bile, however, from the matters voided in both forms of disease cannot be assumed as grounds of identity between them, more than the existence of spasm in both can be considered as such. In the latter form of malady, besides the more malignant nature of many of the phenomena common to both, we find that the state of the blood, the burning sensation complained of at the epigastrium, the low, weak, small, and undeveloped state of the pulse from the commencement of the attack; the cold tongue and mouth, the coldness of the respired air, the great derangement of the respiratory function, the shrivelled state of the extremities, the cerebral congestion, the clonic nature of the spasms, the suppression of the urine and other secretions, the wide diffusion of the disease throughout southern Asia, its violence and fatal effects,— are circumstances which authorise the inference, that the epidemic cholera is different from the common cholera of India, as observed previous to 1817, not in degree alone, but that it is also different

in kind. These circumstances cannot be explained by a reference to a mere difference of intensity in the causes immediately producing both forms of disease, but must be referred to the existence of some superadded cause, whose presence and extension has been as general as the epidemic disease which it has been mainly efficient in producing.'—pp. 39—42.

In the fourth chapter the author offers his views respecting the *causes* of epidemic cholera. Few subjects have occupied more attention, and that, too, of the best minds in the profession, than this of the causes of diseases. It is here we meet with the widest discrepancies among physicians. And what deserves regard is, that these differences, and the long sustained controversies to which they have led, have not ended in the temporary establishment of some particular opinion, but the medical treatment of diseases has been more or less influenced by them. Hence we can find authority, and not unfrequently very respectable authority, for the most opposite treatment, in what have been regarded the same diseases. It is alleged, too, that this variety of treatment has been sometimes successful. This was, not many years since, remarkably true of the treatment of puerperal fever and yellow fever. The opposite methods of treatment in these diseases, were not resorted to merely on account of the failure of all other methods, but were adopted to meet the pathological views of different practitioners. We have room only for the following, respecting the proximate cause of epidemic cholera, which is the subject of the first section of this chapter.

' I regard epidemic cholera, therefore, as essentially an affection of the nervous system, and consider the diminution of the nervous power to be the proximate effect of the efficient cause of the disease—that cause being the electrical condition of the air, arising from, or accompanied by, terrestrial exhalations of a kind unfavourable to animal life. That the depression or affection of the nervous influence soon affects the blood appears evident, and that the black, unoxygenised state of this fluid heightens the previous derangement, and leads to the extinction of life itself, seems equally probable. That the circulation of black blood produces this effect has been shewn by Dr Goodwin, who states, with seeming pro-

priety, that " when the pulmonary blood is no longer fitted to ex-
cite the sinus venosus and auricles to contract, they receive it
into the cavity, and remain at rest." But, whether we agree with
Dr Goodwin and others, that the blackness of the blood consists in
its unoxygenised state; with Ellis and others, in an excess of car-
bon; or, with some physiologists, in both these states combined,—
still its effect upon the action of the heart and upon the brain will
be the same; and death, or extreme debility, &c. will be the uni-
form result of the presence of venous blood in the left cavities of
the heart, and in the arteries. Therefore the phenomena of the
advanced stage of cholera (as those arising from any other causes
impeding the changes produced on the blood by respiration,) may
be considered to proceed chiefly from the presence of black blood
in the heart and arterial system, blood of this colour being found
in these parts.

'In epidemic cholera the circulation at the wrist soon ceases,
but the pulsation in the carotid artery can be felt to be strong till
a few minutes before death, and for some time after it ceases at
the wrist; shewing that the blood is carried to the brain till the
last moment of life. We may, therefore, infer, that death in this
disease is occasioned in the same way as in drowning, *i. e.* owing to
black venous blood being sent to the brain, and destroying its in-
fluence.*

'From all the foregoing considerations, I conclude that the con-
stitution of the atmosphere, to which I attribute the disease—whe-
ther that constitution consisted of a change in its electrical condi-
tions, or in the presence of certain unusual emanations from the
bowels of the earth—greatly depressed, and consequently impeded,
the vital and nervous functions; and, owing to the intensity of this
mode of operation, and, perhaps, to the co-operation of the exciting
or occasional causes, thus tended to the destruction of the lives of
those predisposed to its influence, giving rise, during the processes
of its operation, to the phenomena characterising the malady.' pp.
147—149.

Of the treatment. *Bleeding.*—When this can be done,

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* The patients, however, in general retain their senses to the last, although
there are always drowsy and stupid appearances about them; the eyes are gene-
rally turned, or drawn up in their orbits, and are half open, shewing only their
white part; but, whenever I could get a full view of the eyes, I observed that the
pupils were much dilated.

it should never be omitted.   The object is to diminish the quantity of blood, and to relieve the heart and lungs, and enable them to perform their functions.   We can attempt this with any chance of success in the early stage of the disease only, and before the pulse ceases at the wrist.   After this, though blood may run from the puncture, the stream will suddenly cease, and the patient sink at once.   Death has been accelerated by doing thus, and the employing of a remedy in the advanced and fatal stages of this disease, has brought it into disrepute, as death has so suddenly followed its use.   Not that this has always been the result, even under these desperate circumstances.

'We have instances, however, wherein blood, drawn even in the advanced stage of this disease, has continued to flow till the balance of circulation was restored, and the patient recovered.' p. 168.

'In these instances the blood was at first thick, black, and came away in drops; at length it became thinner, and flowed with more ease, till the colour changed to a bright red.   This is the change which should always be looked for, and whether it take place after the abstraction of one ounce or thirty, is of no consequence; this change must supervene before the patient can be considered safe.   Under all circumstances, therefore, I think we should never forego a trial of the lancet.

'That cases have occurred, wherein eighteen or twenty ounces of blood have been taken away, and the patient died, cannot be doubted; but in all these cases it will be found that the bleeding ceased after the vessels had been emptied, whether one or twenty ounces had been abstracted.   On the other hand, it will likewise be found, that if blood flows freely, till the colour changes from black to red, the patient, in general, will recover.   When we observe, therefore, the thick, black, carbonated blood change to a natural red colour, and consequently to a thinner consistence, we may rest satisfied that the disease is under our control.' pp. 168, 169.

The author acknowledges that he has known cases do well without bleeding; and admits, that it is not always successful.   He however asserts, that if it be done early, while there is pulse at the wrist, in nine cases out of ten it will prove successful, especially if the colour of the blood change

from black to red, if the pulse get up, and the spasms be relieved.

'*Opium.*—Opium has been recommended, and generally used in large quantities; but I have seen very little good arise from it; on the contrary, I have often thought that there was generally a greater determination to the brain, and a much greater degree of stupor, where opium had been given and depended upon, than where it had not. On this account, I very early discontinued its use, and latterly never gave it under any circumstances in epidemic cholera, except in combination with calomel. In general, I used camphor, ammonia, and æther, in the following form :—

     ℞ Mist. Camph. ℥ lss.

      Aquæ Ammon. M xxxv.

      Sp. Æther. Vitriol. ℥ ij.

     M. ft. mist.

' A desert-spoonful of this was given every ten, fifteen, or twenty minutes, according to circumstances.' pp. 175, 176.

Rubefacients; warm and vapour-bath; nitric acid blister; boiling water.—The first of these only, rubefacients, is recommended by the author. He has found more benefit from the application of dry heat, as by hot flannels, than from any other mode of using it.

' The following,' says Mr A., ' is the way in which this disease has usually been treated under my direction :—

' A patient is admitted into the hospital, I shall say at noon, with all the symptoms of cholera; a vein is immediately opened, and one scruple of calomel and two grains of opium are given in the form of a pill, and washed down with the camphor draught. The body and extremities are well rubbed with dry flannels made warm, and bottles filled with hot water are applied to the feet and hands; but if the spasms are severe, spirits of turpentine are used as an embrocation. In an hour we generally perceive the effects of these remedies, and whether the disease be in any degree arrested, or be proceeding in its progress. If the former, nothing more is to be done till evening, when the calomel pill may be repeated, and an enema exhibited. The following morning the bowels should be again fully evacuated, and then the patient may be considered safe.' pp. 178, 179.

Leeches are to be applied to the abdomen, temples, and base of the skull, when blood cannot be drawn.   The calomel pill should be repeated, and turpentine embrocation continued.   The irritability of the bowels is to be overcome by anodyne and antispasmodic enemas.

'An opportunity sometimes offers in the advanced stage of the disease to abstract blood: this is indicated by a struggle or effort of the circulating system to overcome some resisting power, and is a most auspicious symptom, which should never be overlooked. This reaction indicates that the constitution is making an effort to restore the circulation, but is unable to do so till assisted by the abstraction of blood, which abstraction aids in removing that oppression which it has not power of itself to overcome.   This is a point, in the treatment of epidemic cholera, of the greatest importance, requiring both tact and judgment; but the change in the circulation indicating the propriety of adopting and the time of performing it, should always be expected and taken advantage of as soon as it occurs.

'In this manner the treatment proceeds, sometimes with evident signs of success, at others, without the least impression being made upon the disease.   A very few hours, however, will frequently develope what we ought always to hope for, and even to expect, viz. a favourable change.   This is always accompanied by relief from the bowels, in the form of a blackish, grey, feculent, and tenacious discharge.   Whenever this takes place there is hope, and the exhibition of calomel should be followed up with a smart purgative, if the stomach will receive it; if it will not, an enema should be administered, and repeated till motions are procured. The purgative I have generally found to answer best at this stage of the disease, and to sit most lightly on the stomach, is the following draught :—

> R Pulv. Jalap. Comp. ʒss.
> Menth. Pip. ʒij.
> M. ft. haust.

and, as it is a matter of the very first consequence to act upon the bowels freely as soon as possible, if this draught have no effect in two or three hours, it should always be repeated.' pp. 181, 182.

In these extracts we have the treatment of the disease at its onset, or at such periods as, in the judgment of the phy-

sician, authorize it. The subsequent treatment, says Mr A., is now to be considered ; and the indication in this stage is to guard against congestion in the abdominal and thoracic viscera, and in the brain ; each of which suffers in a greater or less degree, and sometimes the whole are attacked at the same time. This part of the volume closes with remarks in proof of the non-contagious nature of the disease, and on the preservative means which may be adopted, in order to escape its attack. Mr A. is perfectly satisfied, that the disease is not contagious. What is quite remarkable, the same opinion is held very generally by the community at large, in places too where the disease has most prevailed. The author has been led to exhibit the proof somewhat at length, because some distinguished medical men hold the opposite opinion. The means of prevention are carefully pointed out. Cold chills, night dew, wet, and moisture, are to be avoided. Permanent tonics, particularly such as determine to the skin, improve the tone of the digestive organs, and promote the regular functions of the bowels and biliary organs, are useful means of prevention. The diet should be regular, moderate, and easy of digestion, and the mind should be preserved as free as possible from high excitement, or debilitating depression.

The Second Part of the work consists of topographical and statistical reports of the diseases most prevalent in the different stations and divisions of the army under the Madras presidency. The Third, and last part, contains practical remarks on the effects of calomel on the mucous surface, and secretions of the alimentary canal, and on the use of this remedy in disease, more particularly in the diseases of India. This is quite a valuable part of the volume. It begins with some introductory remarks on the different modes of exhibiting calomel which have prevailed at various times, and the various purposes which have been had in view in its employment. At its earliest introduction, it was used principally as an active purgative, and was given alone, and in combination with articles which would hasten or increase its active properties. The purpose was to procure full evacuation of bile and fæces, or to re-establish any natural evacu-

ation which had been prematurely checked.   Horstius, Syl-
vius, Wepfer, Friend, Schroder, Junker, and Geoffroy, are
enumerated among those who employed mercury after the
method above referred to.   To this mode succeeded that
of giving calomel in small doses, and after short intervals,
and for the purpose of affecting the system by a slow opera-
tion and insensibly; in place of the older method which effect-
ed the same after a shorter time, and by an obvious operation.
We say affect the system; for it does not appear that, by
the earlier method, the calomel gave relief after the manner
of a common purgative, but by the consent which the other
parts of the body manifested during their diseases, with its
more obvious effects on the liver, stomach, and bowels.
Within a few years, some practitioners have returned in
some measure to the older practice.   In some diseases, and
especially those of India, and those which resemble them in
other countries, cholera, dysentery, and some hepatic com-
plaints, large doses of calomel, and given at comparatively
long intervals have been exhibited, and it is alleged with
great success.   Dr Johnson should especially be named, as
having given this method a fair trial, and he has reported very
favourably of its result.   Calomel thus given in scruple and
half drachm doses, at intervals of from sixteen to twenty-four
hours, instead of irritating the stomach and bowels, is ob-
served to diminish the irritability already existing, and to
operate without the pain and griping which not unfrequently
attend its operation in small doses.   On the subject of the
necessity of producing salivation, we have the following :

'There is a notion, and it has been inculcated with great indus-
try, by those even to whom we are indebted for reviving the prac-
tice of exhibiting calomel in large doses, that where mercury is
useful the mouth must be made sore, and that when the mouth is
sore, the patient may be considered safe.   This I conceive to be
fallacious, and to have done serious injury to the constitution : for
it must be well known to every medical man who has at all given
his attention to the operation of mercury, that some constitutions
cannot be affected in this way, and that any quantity of any prepa-
ration of mercury may be given without making the mouth sore.
To continue, therefore, the administration of a remedy during an

indefinite period, for an object that cannot be attained, must be attended with danger to the constitution, and loss of credit to the remedy so misused.

'This doctrine of the necessity of salivation, in the hands of a judicious practitioner, might, indeed, not be productive of so much injury, because they who practice with judgment, always having a defined object in view, discontinue the remedy after that object has been attained, whether the mouth become sore or not; but there are those who, from prejudice, inattention, or, perhaps, a want of knowledge, continue to use calomel till the mouth becomes sore, merely because it is a rule laid down—an absurdity which does not merit refutation.' pp. 385, 386.

In the second section, Mr A. gives some experiments, in which calomel in doses of from one to three drachms was given to dogs in health, with the appearances on dissection. We extract the following from the conclusion of the section, only premising that the author found the vascularity most diminished in those stomachs, where the largest doses had been given.

'These experiments were followed up by the performance of others, and the results were always the same. I am led, therefore, to the following inferences, the former of which is confirmed by Dr Yelloly's interesting paper on the vascular appearance of the human stomach, read to the Medico-Chirurgical Society, July 27, 1813,—that the natural and healthy state of the stomach and intestinal canal is high vascularity; and that the operation of calomel in large doses is directly the reverse of inflammatory.' p. 397.

Calomel, says Mr A., has a very striking influence on the secretions of the intestinal canal, and on those of the liver and pancreas. From what he has observed in experiments on the living and dead body, he is inclined to think, that it produces some chemical changes on these secretions. He found the tenacious secretion, which is frequently found covering the mucous coat, rendered more fluid, and of a dark grey, by the admixture of calomel; and the first discharges in colic, after giving calomel, have the same colour. An active purgative afterward, if the whole purpose of the calomel have been accomplished, will bring away bilious matter,

and not unfrequently with much relief.   It is often the case, that the calomel alone may produce the same effect.   In the employment of calomel in the treatment of fever of various types, the author proposes to fulfil three distinct indications.

'The *first* of these is to diminish the irritability of the stomach, when that state exists, and more particularly, when it evidently depends upon increased vascular action in the internal coats of this viscus.   The *second* intention with which this remedy may be exhibited, is to correct and to promote the discharge of the secretions on the internal surface of the digestive canal, and those of the large secreting organs, which are generally deranged in this class of diseases : and the *third* indication is to procure, by its means, under certain conditions which will come under consideration, increased action of the great secreting organs, and to excite the functions of the vascular system generally, without, however, inducing its specific operation on the salivary organs.' pp. 409, 410.

The employment of calomel in other diseases, and particularly in the diseases of children, follows.   We have room for only a single extract, the author's use of this medicine in croup.

'Calomel has been recommended in croup in doses of from five to ten grains, given at very short intervals, until spinage-like stools are procured from it.   I have certainly found this treatment efficacious, and it agrees with the results of my experiments, and with the views I entertain of the operation of this medicine ; but I think this mode of prescribing calomel frequently interferes with the employment of other remedies which are equally beneficial, and more suited to the urgent circumstances and symptoms so frequently apt to supervene in the course of the disease : I allude to the employment of emetics, particularly when the paroxysms of suffocation threaten the life of the patient.   I prefer, in this disease, to give not less than ten grains of calomel at once, and preferably at bed-time, prescribing also a cathartic draught the following morning ; or, if circumstances seem to require the exhibition of this medicine through the day, I think that benefit will generally be derived from the exhibition of an emetic an hour or half an hour before the calomel is given.   My own experience is decidedly in favour of this practice ; and I have often adopted it previously to the exhibition of the dose of calomel at bed-time.

' The chief advantage of this mode of using calomel in croup consists in the circumstance of its yielding all the advantages which can be expected to be obtained from the remedy, in whatever manner it may be given in this disease, and certainly as much benefit as I have seen accrue from any other mode formerly recommended ; whilst it by no means stands in the way of the use of other very efficient remedies, but acts, as it were, jointly with them. Indeed, its efficiency is promoted by the previous exhibition of an emetic, and by active depletions,' &c. pp. 457–8.

IX.

Practical Observations on the Convulsions of Infants. By JOHN NORTH, Surgeon Accoucheur, Member of the Royal College of Surgeons. London, 1826. 8vo. pp. 282.

SOME interesting remarks by the author of this work upon a peculiar spasmodic affection of infants, have been heretofore published in the medical journals, and have been transferred to our pages. We think it worth while, however, to offer to our readers a condensed view of the contents of the present work of Mr North, which embraces in part the same ground, and which contains in fact some of the same remarks. The frequency, the obscurity, and the fatality of the convulsions of infants, as well as the distress and alarm which they always occasion among those who surround the patient, make it desirable for practitioners, particularly the junior class of them, to possess a familiar acquaintance with all the knowledge which we have upon the subject. Of the frequency and fatality of this disease, we can have no stronger illustration than a fact recorded by Dr Clarke, as quoted by Mr North, that of 17,650 children born in the Lying-in Hospital of Dublin, a sixth part died during the first year of their existence, and that nineteen out of twenty of these fell victims to convulsions. It has been recorded that in Copenhagen, a city if we recollect right containing not more than two hundred thousand inhabitants, the deaths from convulsions for thirteen years averaged almost one thousand. It is not in-

deed probable that we ought to regard all these cases, as being primarily and originally cases of convulsions. Children suffering under other complaints, and actually dying of other complaints, are always liable, from their predisposition to nervous diseases, to have convulsions arise as a symptom in the course of their sickness. This symptom comes in ' at the death'—and from its peculiar character and apparent violence, when compared with other symptoms, is apt to absorb the attention of the friends and physician, and to obscure the original and fundamental disease.

There is a considerable difference of opinion among physicians with regard to the nature of convulsions in children, and the consequences to which they lead. It is well known, that some practitioners are in the habit of considering every case of convulsions as proceeding from, or at least indicating a tendency to, some direct affection of the brain. Their practice is directed accordingly, and vigorous measures are immediately put in requisition to avert the apprehended mischief. Others on the contrary do not always look for consequences so serious, and are contented with a more mild and lenient practice. It is difficult to measure the degree of success which attends these several modes of practice. The advocates of the former considering themselves as having prevented the mischief which they feared— the advocates of the latter believing that these patients have recovered not in consequence of, but notwithstanding the means to which they have been subjected.

Mr North we should be inclined to rank with the latter class of practitioners ; though, perhaps, he may be regarded as standing very nearly upon the middle ground between the two. He seems to be a man of plain, practical sense ; not carried away on the one hand by the passion for over-practice which is so prevalent among the writing physicians of the present day ; and on the other hand, not going into the opposite extreme of a negative and irresolute treatment. He is not disposed to look upon every change which takes place after medicine is administered, as necessarily the consequence of the operation of that medicine. He has a just idea of

what it is in the power of art to accomplish, and what it is
not able to accomplish.

The term convulsions has been used very indefinitely,
and applied to a great variety of symptoms and cases. Ac-
cording to our author, convulsions exist, whenever there is
‘ either an alternate and involuntary contraction and relaxa-
tion of the muscles, or a permanent contraction of them.’
The term spasm is frequently used as synonymous with con-
vulsions. Mr North is inclined to apply it ‘ to denote a
very slight contraction or tension of a muscle, which in ma-
ny cases leads to more decided convulsions.’

‘ The parts most commonly the seat of convulsions are the eyes,
the features of the face, the superior and inferior extremities, and
the respiratory muscles. It perhaps never happens that the fea-
tures retain their natural tranquillity of expression, while other
parts of the body are convulsed, although the preternatural move-
ments of the face are sometimes slight. Each part may be sepa-
rately and successively affected, or the whole frame may be con-
vulsed at the same moment. The convulsive movements are
sometimes confined to one side of the body. This variety does not,
however, alter the nature of the disease, and is not of sufficient
importance to warrant the distinction which has been adopted by
some authors of general and partial convulsions.’ pp. 18, 19.

Mr North endeavours to draw a line between simple con-
vulsions and epilepsy. But in this, as it appears to us, he
is unsuccessful, and by no means points out circumstances
which are characteristic of either disease. So far as any
difference can be pointed out, it would seem to be this : that
in epilepsy, the convulsions proceed from a cause more
violent, and more unyielding in its nature than in ordi-
nary cases of convulsions. But in fact, nervous affections
of all kinds pass into each other so imperceptibly, that the
line of distinction is difficult, and sometimes impossible to be
observed. The term epilepsy is applied to cases of convul-
sions in which the paroxysms are more severe, return more
frequently, are more obstinate in their character, or have a
periodical recurrence.

The common symptoms of convulsions, are thus described

in the words of Dr J. Clarke. 'The most common case of convulsion, is that in which there is an universal spasmodic contraction of all the voluntary, and many of the involuntary muscles of the body, accompanied by foaming at the mouth, protrusion of the tongue, staring of the eyes, distortion of the eye-balls, laborious and obstructed respiration, sometimes accompanied with a violent redness of the face and scalp in the beginning of the paroxysm, followed by a purple colour of the whole body at the end of it. The latter symptom sometimes continues till the child dies.' This is the description of a severe paroxysm. In general it is less severe, and in particular, foaming at the mouth, and the redness of the face and scalp are not usual.

With regard to the proximate cause of convulsions, it is remarked by Mr North, that, 'without possessing a knowledge of the essential nature of convulsions, it must be evident, that wherever convulsive motions take place, some morbid change must exist in the seat of volition, or in the nerves, or in both ; or that the muscles may have undergone some morbid alteration, in consequence of which they exhibit the various phenomena of convulsions, without any alteration of the nervous system.'

The increased predisposition to convulsions, which exists at the present day, is attributed by our author, in part, at least, to the modern system of educating infants. The intellectual powers are in his opinion stimulated to exertion too early and too powerfully—children are confined too much and too long in schools—they are suffered to remain from bed till too late an hour in many cases—all which circumstances, combined with food of improper quality, in improper quantity, and mismanagement in various ways, tends to render the whole nervous system highly susceptible of disease.

Infants are liable from birth to convulsions, and this liability often probably arises from excessive and long continued pressure upon the head in child-birth, during protracted labour. An irregular structure of the heart and lungs also produces convulsions by which infants are frequently carried

off very suddenly.   The retention of the meconium is an-
other cause of convulsions among infants.   The exposure of
new born children to very loud noises and very strong
lights will also produce them.   Other causes of convulsions
among infants are found, in the existence of organic diseases
in the brain and spinal marrow, in the desiccation of cuta-
neous diseases, in the injudicious treatment of measles, and
in general in the unnatural progress and course of all eruptive
diseases.   Worms in the intestines are said to be a frequent
cause of epilepsy and convulsions in children.   Mr North
believes this to be the case much less frequently than is ima-
gined : he does not recollect a single instance where convul-
sions appeared to depend upon the presence of worms in
the intestines, or to be relieved by their discharge.

The following is Mr North's description of what he con-
siders the premonitory symptoms of an attack of convul-
sions :——

‘ From whatever cause a great predisposition to convulsive af-
fections exists in children, the following symptoms are usually
characteristic of that state of increased irritability from which
their occurrence is to be anticipated.   Although it cannot be said
with truth that the child is ill, he is evidently threatened with dis-
ease.   It will be observable that during the day, he starts with
apprehension at the most trifling noise.   His sleep is disturbed
by sudden cries.   Not unfrequently he sleeps throughout the day,
and remains restless and entirely sleepless during the night.
Whatever might have been the natural placability of his temper,
he now becomes peevish and irritable ; quarrels with his compa-
nions ; and derives either no pleasure at all, or but a momentary
amusement, from his most favourite playthings, which will be sud-
denly thrust away after having slightly occupied his attention.
The eyes are frequently fixed, without being apparently directed
to any particular object ; or they are thrown upwards, and are
steadfastly fixed upon the ceiling.   The pupil of the eye is some-
times for a moment contracted and then suddenly dilated.   I have
frequently held a candle close to the eye of a child, when I have
anticipated the occurrence of convulsions, in order to remark the
effect produced.   In some instances where the pupil has been

contracted, at the moment the light was applied, it has suddenly dilated, and as suddenly again contracted, the light being steadily held close to the eye. The effect of light upon both pupils is not always similar. One may remain fully dilated, while the other contracts, or one pupil may remain stationary, the other being alternately contracted and dilated. I am not aware that the remark has been made before; but I believe, from frequent observation, that when a light is applied close to the eyes, and the same effect is not produced upon both pupils, that we have much reason to fear some serious affection of the head. It is now, I believe, generally admitted, that the mere dilatation or contraction of the pupils is dependent upon so many and dissimilar deviations from health, that no particular inference can be drawn from either of these conditions of it. An oscillatory motion of the pupil is very frequently one of the indicative symptoms of approaching convulsions.' pp. 69—71.

In children disposed to convulsions there is also a greater extension and rigidity of the limbs during sleep, than is natural, the great toes and thumbs being turned inward, and the latter pressed closely against the palm. There is also great irregularity in the colour of the face, in the expression of the eyes and countenance, in the degree of animation of the child. His respiration is irregular. He frequently makes long and deep inspirations with apparent difficulty, and these are alternated with a short and catchy breathing. This is accompanied by a fulness of the upper lip, and a contracted appearance about the nose. The fingers are in frequent and sudden motion, and the thumb closely contracted upon the palm. When put to the breast, the child sucks eagerly for a moment, but ceases suddenly, throwing back the head with an expression of anxiety in its countenance, rolling it perhaps from side to side. Hiccup also is often one of the premonitory symptoms of convulsions.

It is not pretended that these symptoms are invariably the precursors of convulsions, nor that, where they are observed, convulsions will follow with any degree of certainty. Probably all of them may under different circumstances be produced by causes totally different in their nature from

those which produce convulsions. It is only by the combination of many of them, and their comparison with one another, that we are to draw the inference that convulsions are approaching. This inference can indeed in no case amount to any thing like certainty; but it may be sufficiently well founded to put us upon our guard, and induce us to adopt precautions which may prevent their occurrence.

The term 'inward fits' is noticed by Mr North; and all practitioners will recognize the term as familiarly used among nurses. Mr North objects to the term as conveying no distinct idea. No doubt it is used with great vagueness by that description of persons, and applied to a vast variety of cases which have no connexion whatever with one another. Still there is an affection not unfrequently met with among children, to which this term is often applied, and the nature of which, so far as we understand it, is tolerably well expressed by it. In this affection, all the symptoms of convulsions are exhibited, except the muscular contractions. These it is true are the most prominent of the occurrences in an attack of convulsions, but the internal state on which they depend is really of the chief importance; and we can conceive that the internal state should exist, without the production of this symptom. This state might very properly be called a fit, though not a convulsion, since it is not implied by the term inward fit, as Mr North supposes, that there is a convulsion of any internal part. We use the word fit in many cases where no convulsion is ever imagined, as in the expressions, a fit of the gout, the gravel, of apoplexy, &c. The affection to which we allude, approaches most nearly in its symptoms to that form of epilepsy which has been called leipothymia, and which is described particularly by Dr Prichard in his work on Nervous Diseases, for a review of which we refer to a former number of this journal.

Convulsions often proceed from the spasmodic colic of infants, and may arise also in the course of fever, and other diseases of early life. A fit may be produced also by some mental impression or accidental injury, which shall leave no permanent effects behind it. Thus a child after a violent

fit of passion, a fright, or a severe blow upon the head, falls into a fit, continues in it for a short time, and then is perfectly well ever afterwards. Convulsions are a bad symptom in hydrocephalus; indeed it is often the first symptom which creates any alarm, or indicates danger.

The common errors with regard to the management of the diet, exercise and dress of children, probably have a great influence in predisposing them to convulsions. The effects of over-feeding children, and of giving them food of improper quality, are not immediately obvious; indeed the most obvious effect often is an unnatural plumpness and stoutness, which rather leads us to expect robust health, than a tendency to disease. Such a tendency, however, does too often exist, and children of this kind are not only more easily made sick, but suffer more severely from sickness when the subjects of it.

Convulsions no doubt frequently arise from the presence of indigestible food in the stomach and bowels;—paralytic affections are also often the consequences of a similar derangement. Mr North is of opinion, that a predisposition to convulsions may have been produced by the milk of an improper nurse. A child has been known to die suddenly in convulsions, after sucking the milk of a nurse who had been exposed to labour in a burning sun. Boerhaave knew of instances of a similar kind. A child died suddenly after having been suckled by a woman who had been violently exasperated.

A plethoric state of the system predisposes children to convulsions. But it is not therefore to be inferred that in every case of convulsions there is an excess of blood in the system, nor that there is either a local or general increase of the actions of the arterial system, which demands the loss of blood. On the contrary, debilitating causes have oftentimes a direct effect in producing convulsions; and they may arise from a state of nervous irritability, without any vascular excitement, either local or general. We quote some very just remarks of our author on this topic.

' It has been said by Haller, and the doctrine has been adopted

and repeated by Bichat, ' that the vital force manifests itself in two opposite states ; in paralysis and convulsions. The first is the sign of *diminished energy ;* and the second of *augmented energy.*' Such an assumption is, I apprehend, contrary to fact, and if indiscriminately acted upon, must be followed by injudicious practice. Paralysis frequently takes place in such a condition of the general system as to require depletion for its relief; and although the latter part of the proposition is often true, it must be admitted that it has many exceptions, and that ' augmented energy' is not the necessary attendant of convulsions, unless the term refers merely to the increase of muscular action. It is worthy of remark, that every animal which dies from loss of blood is attacked with violent convulsions during the last moments of its existence. This fact is daily exemplified in slaughter-houses. Puerperal women, who suffer considerable hemorrhage from the uterus, are almost invariably convulsed. There can surely be no ' augmented energy of the vital force' in these cases ; for it must be observed, that convulsions occur before any reaction takes place in the system weakened by excessive bleeding.' pp. 101—103.

' It is a curious fact, which has lately occupied considerable attention, and of which Morgagni was aware, that there may be great determination of blood to the head, with much turgescence of its vessels, when the individual has suffered severe hemorrhage. In such cases the vessels of the head throb violently, pain is complained of, and if the subject be a child, it will be extremely restless and irritable. Mr Cooke in his abridgment of Morgagni, well observes, that the liability to this form of cerebral plethora, appears to be proportionate to the preceding hemorrhage and the consequent debility. Dr Seeds has made some interesting experiments upon this subject.* He found when death was caused by opening the veins of animals, a state of venous congestion in the brain. In whatever way inanition may be produced, convulsions are likely to occur.' pp. 104, 105.

All debilitating causes then, operating upon the very susceptible and irritable constitutions of children, are liable to produce convulsions. Such are all long continued diarrhœas, violent pain in any part, dentition, &c. &c.

It was formerly believed, that the natural revolutions

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* Med. Chir. Journal, Feb. 1826.

which occur in the sexes at the age of puberty, not unfrequently prove the cure of previous convulsive affections. Our author, on the contrary, is of opinion, that infants who are attacked frequently with convulsions, are very likely to be affected with chorea at the age of puberty.   Girls are more obnoxious to this disease than boys.   The approach of puberty is productive in both sexes, but particularly among females, of much general disturbance and irritation, and not uncommonly of convulsive affections.

Convulsive affections are said to have been sometimes epidemic.   This circumstance, although it seems apparently very unlikely, is supported by considerable evidence.   ' It would be more correct,' says Mr North, ' to presume, that from a local cause some epidemic disease had prevailed, of which paroxysms of convulsions were the symptoms.'   He quotes from the *Journal Gen. de Medecine* an account by M. Claubry of such an epidemic in Paris.

' Of five children treated by M. Claubry two were saved.   The lives of the others are said to have been sacrificed to the obstinate opposition of the parents, who objected to the necessary treatment. Twenty-four children perished in one neighbourhood near Paris of this malady, which made its attack in the following manner. The little patients were very suddenly attacked with convulsions and loss of sense.   The face appeared pale and swollen : the eyes dull.   The mouth was quickly filled with a limpid fluid, which freely flowed from it : this fluid was not frothy.   The muscles of the face were contracted : the lips were of a livid colour : the ball of the eye appeared to project from the orbits : the nostrils were distended—the pulse was hardly perceptible.   The extremities were rigidly extended.   The head was thrown backwards, and remained motionless. Urine flowed during the paroxysms.   The belly appeared much swollen. Upon the subsidence of the convulsions, the lower jaw became relaxed and fell.   The tongue was thrust from the mouth, and appeared lengthened.   It was pale and moist, as were also the palate, and the interior of the cheeks. The attack was speedily fatal. It generally destroyed within seven hours.   This epidemic, which only attacked children below eight years of age, was also observed in dogs under the age of four months.   The symptoms under which the dogs laboured were pre-

cisely similar to those which appeared in the children. In both
cases the breathing was stertorous as in apoplexy.' pp. 113, 114.

Upon dissection of some of these children and of some of
the dogs which died at the same time, similar appearances
were found in each——viz. blood effused under the cranium,
the vessels turgid with blood, the dura and pia mater of a
deep red colour, &c. &c. In some interesting observations
published by Dr Moulson in the Medico-Chirurgical Journal
for 1817, is given an account of appearances observed by
him in the dissection of fatal cases of convulsions. The dif-
ferent muscles which were spasmodically affected during
life, were noted down carefully, in order to examine after
death, whether any obvious difference could be detected be-
tween them and those which were free from spasm. Upon
examination after death, it was found, that the nerves distri-
buted to the muscles which had been thus noted down,
whether proceeding from the brain or spinal marrow, had the
blood vessels at their origins preternaturally distended with
blood, whilst the nerves going to the muscles not affected
by spasms, were found in a natural state. Facts are record-
ed by many other distinguished pathologists, such as Mor-
gagni, Hoffman, and Portal, tending to confirm the observa-
tions of Dr Moulson. But these appearances are not con-
fined to cases of convulsions; they are found in most diseases of
the brain and nervous system, and may indeed be the conse-
quence rather than the cause of the disease.

It is rarely the case that we can give a certain prognosis
in convulsions. The affection of the muscles, which is the
most prominent symptom, is by no means always in propor-
tion to the degree of the internal disease on which it de-
pends. The most, violent paroxysms may be produced by
internal causes of a trivial and transient nature ; and, on the
other hand, a state of things which threatens great danger,
may be accompanied by very slight convulsions. We must
consider the cause of the convulsions, the constitution of the
child, the sex, age, &c. In a susceptible child, the danger
is less than in a robust one. The younger the child, the
less is the danger. In early infancy both sexes are equally
liable to convulsions, and are in equal danger from them.

Afterwards girls are more subject to them, but are less seri-
ously affected than boys.

‘When the convulsive attacks are slight and of short duration,
and are succeeded by the natural cheerfulness of the child, we have
but little reason to apprehend any danger.   On the contrary, when
the paroxysms are of long continuance, and gradually increase in
severity and violence, and leave the child dull and heavy, we have
much reason to apprehend a repetition of the attack, and should
give a guarded opinion as to the ultimate consequences.   In all
cases which I have myself witnessed, where the child was destroyed
suddenly during convulsions, the dark colour of the face and neck,
and the almost stertorous breathing indicated a state very nearly
allied to apoplexy in the adult.”   “ Death may occur also in con-
sequence of the respiration being impeded by the irregular con-
tractions of the respiratory muscles.   The lungs become engorged
with blood, and the circulation through them is impeded.   Suffo-
cation is quickly threatened, and destroys the patient, unless the
natural action of the muscles is restored, and the respiration and
circulation are enabled to proceed without interruption.   In some
cases a state of syncope supervenes to convulsions, from which the
child never rallies.   It seems probable that premature interment
sometimes happens when apparent death has taken place.’ pp.
128, 129.

With regard to the treatment of convulsions, it is obvious
that the principal object must be to remove that state or dis-
ease of the internal organs upon which they depend ; whilst
the convulsions themselves, although most important and
alarming in the eyes of bystanders and apparently the most
distressing to the patient, are of comparatively little conse-
quence ; ‘ the duty of the practitioner does not consist so
much in cutting short a paroxysm of convulsions, when it
has actually occurred, as in carefully observing and alleviat-
ing the symptoms which have been described, as indicating
the probability of an attack.’

Mr North is of opinion that little is to be done during the
continuance of the paroxysm ; the warm bath—a few drops
of the spir. ammon. fœtid. or the spir. ammon. arom. a purga-
tive glyster, and, where there are evident marks of determina-
tion to the head, bleeding, are the principal remedies men-

tioned. It is hardly necessary to say, that among us it is a common practice to administer an emetic whilst the child is in the paroxysm ; and the success of the practice is such, as to leave no doubt of its propriety.

Dr Bronn of New Orleans asserts, that a gradually increased pressure upon the stomach with the hands, or a tight bandage around the body, very much relieves the convulsive paroxysms. If the pressure be suspended, the convulsions return with increased violence. Dr Currie says, that he has found the cold bath very efficacious in removing the convulsions of children, whether made use of during the fits or the intervals ; that it stops the paroxysm and gives time for the application of other remedies. Mr North does not approve of a trial of this remedy.

Where all the symptoms of the case indicate a determination to the head, or imply a disposition to compression, bleeding from the jugular vein, the arm, or by cupping from the forehead or temples, in quantities to be determined by the age and constitution of the child, and by the effects of the remedy, is the first measure recommended by our author. The bowels should then be freely acted upon by proper doses of calomel and jalap, assisted, if necessary, by laxative glysters. Mr North entirely disapproves of the practice of administering large and repeated doses of calomel every two or three hours, with a view to some action independent of its purgative power.

‘ I am confident,’ he says, ‘ that the constitutions of children are frequently ruined by the heedless and indiscriminate manner in which this powerful medicine is employed. The practice requires to be strongly deprecated, as it is not only pursued but taught, by very high authority in this country. For what purpose, it may be asked, can calomel in two or three grain doses every three or four hours be prescribed in cases of convulsions ? I presume the intention must be to stimulate the lymphatics, and to remove any fluid that may have been effused into the cerebral cavities. But the occurrence of convulsions, it is to be remembered, is no proof of any effusion of water, or of any disposition to such effusion in a great majority of cases.’ pp. 152, 153.

As a purgative, however, calomel has decidedly better effects than any of the milder articles, and produces a more thorough evacuation of the intestinal canal.

Cold should be assiduously applied to the head ; not in the form of a single damp rag, which becomes as warm in a few moments as the body of the patient ; whilst the nurse, perhaps, fearful of giving the child a cold, has been careful ' to take the air off' by holding it to the fire.   The whole head should be completely and frequently wetted with a sponge dipped into cold water, or a quantity of pounded ice or snow should be applied, in a bladder or a flannel bag.   If from the continuation of the cold the countenance becomes pale and the head cool, the application should be discontinued for a short time, but resumed whenever the symptoms of vascular excitement about the head return.   At the same time, the natural heat in other parts of the body should be kept up, and the French physicians sometimes put the patient into a warm bath.

Mr North is decidedly averse to the common practice of applying blisters on and about the head, and thinks the application of them to the lower extremities has been unjustly ridiculed.   Where there is determination to the head, without any general excitement, he recommends them on the calves of the legs and between the shoulders.   His remarks on the application of blisters to children, in general, we shall quote hereafter.

The diet in such a case should be very light, and principally vegetable.   No stimulants to be allowed.

By these means the strong symptoms of excitement will be removed, and the increased vascular action subdued ; but the child often falls into a general state of irritation, which renders it strongly disposed to the return of convulsions. This state is not, probably, very different from that into which children often fall after acute diseases of all kinds. In the opinion of our author, it is—

' a modification of that condition to which Dr Whitlock Nicholl has applied the term " cerebral erethism." This state is very nearly allied to, if it is not essentially the same as, " the watchings" of the older writers, or to the " *pavor nocturnus, et vigiliae immodi-*

cæ" of Lazernu. The child will be sleepless, exceedingly fretful, the pulse rapid and small, and slight twitchings of different muscles and tendons will be detected, if strict attention is paid. For a moment or two the carotids will beat violently, but this increased force will suddenly be followed by a very languid action of them. The countenance is generally pale and distressed, and the brows are wrinkled. Pain in the head is rarely complained of, if the child is old enough to express its feelings.' pp. 162, 163.

In this state we recognize symptoms nearly approaching to those which have been alluded to lately by Dr Hall and Mr Travers, as following exhaustion from loss of blood. Upon a superficial view, they might seem to demand more measures of depletion and evacuation, and these are frequently employed. But they serve rather to augment than diminish the affection. The most appropriate remedies are sedatives ; of these, the best is Dover's powder. The extracts of hemlock and henbane have been given combined with alkalies with advantage. Dr Brachet, who has written a late work on convulsions, confines himself almost entirely to the henbane combined with oxide of zinc, in doses proportioned to the age, symptoms, and constitution of the child. He has never carried the dose beyond ten grains of either medicine in the day. Besides sedatives in this state of things, it is necessary to attend to the bowels, to the diet of the patient, and to the administration of proper tonic medicines ; of these the oxide of zinc has acquired some reputation, as possessing a peculiar influence over convulsive complaints. The sulphate of quinine is preferred by Mr North, as the most elegant and efficient article of this kind. He thinks that he has sometimes seen benefit derived from compression applied to the carotid arteries.

Convulsions are induced in children by a variety of derangements of the stomach and bowels. For the removal of these derangements, Mr North advises cathartic medicines in preference to emetic. It is no doubt desirable to avoid the repetition of emetic medicines in children, as well as in adults. But we conceive that there are many affections of the stomach and upper part of the alimentary canal, which will be readily and immediately removed by emetics, but

only slowly and tediously by cathartics.   It is for these de-
rangements of the organs of digestion, caused generally by
food improper in quantity and quality, that so many nurses
and parents have recourse to Godfrey's cordial, paregoric,
and even laudanum ;   articles which afford a present relief
at the expense of perpetuating and increasing the evil after-
wards.   In connexion with this subject, our author alludes
to a common fault of continuing purgatives, and indeed he
might say all medicines, too long ;   and of mistaking those
symptoms which are in fact produced by the operation of
medicine, as indications that medicine is still necessary.
We quote the passage :——

   'But however great may be the advantages we frequently derive
from the well directed use of purgatives in infants, it is undeniable
that much mischief is frequently produced by their continued exhi-
bition, where they are not required.' 'There are doubtless cases
in which it may be necessary for us to act freely and frequently
upon the bowels of children.   Let us, however, beware that we
do not commit the common, but important error, of considering the
general irritability which is induced by purgatives when long em-
ployed, as a state which demands their still further use, or of re-
garding the unusual appearance of the stools, which is dependent
entirely upon their action, as a proof that the stomach and bowels
are yet in a state of derangement, which is only to be relieved by
further purgation.   Either of these mistakes must obviously lead
to the application of the very cause which is productive of the de-
rangement of health, and of that disposition to convulsive affections
which it is our wish to relieve.' pp. 176—178.

   Convulsions have been supposed to arise from repelled
cutaneous eruptions, or from a sudden cure of those diseases.
Mr North is of opinion, that if an increased action be kept
up on the bowels during the use of means for their cure,
there will be no danger from this source.   Convulsions also
frequently arise in the course of the fevers of children, and
in this case we are advised by many practitioners to apply
blisters.   To this advice Mr N. objects, and takes occasion,
in connexion with it, to give his opinions at length with re-
spect to the use of blisters in children.

'I confess that I am ignorant of the principle upon which this practice is recommended. In many cases I have seen considerable distress and aggravation of symptoms arise from blistering children during a state of general irritation or fever.' 'If I may venture to express an opinion which has been impressed ⌐pon me by re-peated observation, notwithstanding it is in direct opposition to all the doctrines I have heard maintained in the medical schools, I should say, that if blisters were never applied to children in any case whatever, much less evil would arise from the want of them, than is in common practice daily, or perhaps hourly, inflicted by this popular and painful practice. When a remedy is evidently applied without any settled principle, it is a subject of fair inquiry to investigate the claim it has to our confidence. If a child is in a state of coma from presumed oppression of the brain, and if the practitioner wishes to excite every organ to increased activity, and to rouse the nearly extinguished powers of life, he applies a blister, and perhaps with benefit. This is the only condition, in which we can look with any degree of reliance upon blisters in infantile diseases, and in which we need not be apprehensive of any bad effects. But the very same practitioner, if he has to treat a case of local inflammation,—pneumonia for example,—will seek assistance from the same remedy. The disease itself is productive of much general irritation, and of considerable local distress. Whatever is likely to act as a stimulus must be prejudicial, al-though we may be obedient to the instructions of allaying the severity of the attack by bleeding, &c. before we have recourse to blisters. In the latter case, the condition of the patient is the re-verse of the former. If, in the comatose state, a blister acts bene-ficially as an excitant, it must be prejudicial in the other for the same reason. I confess I should leave entirely out of the question the benefit it is presumed we derive from the counter-irritative effects of blisters, when applied to young children. Excepting in the particular cases I have referred to, I believe with much con-fidence, that the advantage from blistering is rarely equivalent to the pain and general irritation it produces. The period at which we apply blisters in local inflammatory affections is not to be for-gotten. We first subdue the severity of the disease by other and appropriate remedies : and when it is upon its decline ; when in all probability the unassisted powers of nature would successfully per-form the remainder of the task, a blister is applied. The patient

gets well, notwithstanding the additional pain thus inflicted, and the fortunate result of the case, which is really to be attributed to the measures previously employed, is said to be owing to the good effects of counter-irritation, &c. and the blister gains a character, to which in point of fact it has no claim.' 'In general practice, children are blistered with the same views and with as little precaution as adults. But he who acts upon this principle must forget the highly irritable nature of children, and cannot have had opportunities of witnessing the torment which they frequently endure from blisters.' 'It is strictly incumbent upon us to examine the probability of affording relief, before we hasten to the use of a remedy which is sure to inflict considerable suffering.' pp. 202—208.

In these remarks there is much truth; yet there are few physicians who would not consider the author as carrying his objections to blisters much too far. So far as he objects to them on account of what he has practically observed of their ill effects himself, his opinion must have that weight, when taken in connexion with that of others, which his general intelligence and degree of experience entitles him to claim. But so far as his objections are supported by reasoning, his argument proceeds entirely upon certain theoretical assumptions, about which few would agree with him.

Several cases have been recorded, in which the vaccine disease has put a stop to convulsions which had continued for some time.

As has been before observed, Mr North makes a distinction between the simple convulsions and the epilepsy of infants. Accordingly he devotes a couple of chapters to the description and treatment of this disease. That there may be a class of cases of convulsions among children which depend upon causes that entitle them to the distinctive term epilepsy, we do not doubt; but our author fails in establishing any satisfactory diagnosis between them; and it does not appear, that any particular advantage arises either practically or theoretically from a distinct consideration of each.

This volume concludes with a description of the symptoms and treatment 'of a spasmodic affection of the chest and larynx in young children, accompanied by general or partial convulsions.' This affection resembles somewhat that which

has been called acute asthma : it has often been called chro-
nic croup.   Mr North has previously published remarks upon
it in the Journals : but his whole account of it is worth re-
peating here.

   ' The premonitory symptoms occur at an uncertain period ; ge-
nerally between the third and seventh month.   At first they may
not be sufficiently striking to attract the particular attention of the
friends, although the practitioner, who has met with similar cases,
may with much confidence predict from them the series of symp-
toms which is subsequently to be developed.   When the child
wakes from its sleep, the breathing is for some moments unusually
accelerated, and is accompanied by that kind of noise which an in-
creased secretion of mucus in the air-passages would produce.   If
the little patient has previously enjoyed a good state of health, the
characteristic rotundity of feature observable in infants quickly un-
dergoes a remarkable change ; the countenance becomes anxious ;
the sides of the nose are drawn in ; the face is pallid and emaciat-
ed ; the child frowns almost constantly : when put to the breast,
it sucks greedily for a moment, but suddenly ceases to do so,
throwing back the head with violence.   Whatever may have been
the previous condition of the bowels, they now become constipated.
A considerable time may elapse before any remarkable change
takes place in these symptoms.   A convulsive affection of the hand
is usually the next morbid sign which excites attention.   The
child's thumb will be found constantly and firmly pressed upon the
palm of the hand : the wrist and ancle-joints are bent rigidly in-
wards ; the head is almost constantly thrown backwards, by which
the anterior muscles of the neck are kept painfully upon the
stretch.   The inconvenience at the moment of waking is not now
a mere acceleration of the breathing,—this symptom still continues
in an aggravated degree,—but the noise accompanying the respi-
ration has gradually assumed a very different character from that
which at first marked it.   Each inspiration is now attended by a
loud crouping noise, which may be heard in an adjoining apart-
ment : the chest and larynx appear to be painfully constricted ; the
heart palpitates violently ; the child sobs, but never cries in its na-
tural manner, during these paroxysms of suffering.   So great is the
difficulty of breathing, that it sometimes appears to be almost to-
tally suspended for a few seconds.   The countenance is then, usu-
ally, pale as in a state of syncope.   Sometimes, but more rarely, it

is dark, and the vessels of the face turgid as in apoplexy. The child has frequent attacks of convulsions, during which the features are much distorted. The whole body is sometimes, but more rarely, implicated in the convulsive movements. The paroxysms vary in duration and violence. In the child of a M. Lambert, in whom the convulsions were very frequent and severe, the state of opisthonotos was so complete, that for many days the head and heels were the only parts which touched the bed. If with diffi- culty this apparently painful position was altered by the mother, it was quickly resumed. The anxiety of the countenance, which was at first only occasional, becomes in the progress of the com- plaint constant and very strongly marked. The brow is constantly knit.

' In the majority of cases no sustained febrile action is to be de- tected, nor is there usually any indication of particular determina- tion of blood towards the head. I have lately, however, seen two cases in which were superadded to the above train of symptoms considerable febrile disturbance and much cerebral derangement, with evident determination of blood to the brain. In several in- stances I have known the firm contraction of the thumb, the rigidly bent position of the hand and foot, and the crouping noise in respi- ration, continue for many weeks without intermission.

' The child sometimes appears lively for a short period, and the countenance may be animated by a momentary gleam of cheerful- ness; but it almost invariably awakens from its slumbers, however tranquil they may sometimes appear, with a convulsive paroxysm similar to that above described.' pp. 254—259.

This affection is often distinctly dependent on difficult dentition, and is relieved by the lancing of the gums, or by the protrusion of a tooth. It is sometimes, though seldom, fatal. It is the opinion of many physicians, that there is a tendency to hydrocephalus in the complaint, but our author does not subscribe to it.

As this affection is, in a great majority of cases, connected with a painful and tardy process of dentition, attention to the state of the gums is a matter of primary importance. A full, free, and if necessary repeated incision of the gums is particularly insisted upon, and is often followed by immediate relief to the distressed and croaking respiration, and to the

spasms of the hands and feet. The incision should be made with a dull rough-edged instrument, since this makes a more permanent and effectual opening than a clean cut with a sharp lancet.

Constipation being a leading feature of this complaint, purgatives are important measures in its treatment. The mild ones are not sufficient, and we must resort to calomel, jalap, and senna. Small alterative doses of mercury are sometimes necessary. When there seems to be determination to the head, the same means are to be adopted as in other cases of convulsions. Sedatives are rarely used with advantage.

'It has been stated that the attack generally commences the moment the little patient wakes from its slumbers; and even after the more severe symptoms have passed off, we shall still find the child rising from its sleep with short and convulsive breathing, and with an appearance of much agitation. These slight remains of the affection may continue for several months; and in more than one instance I have known the attack return with all its original severity, in consequence of the child being suddenly awakened either by accidental noise or the imprudence of the nurse. It is of consequence, then, that every child who has suffered from this malady, should be roused from its sleep with gentleness and caution. The same precaution, indeed, is equally necessary in every form of nervous and convulsive diseases, more particularly those which affect the easily excited constitutions of infants and children.' pp. 281, 282.

MISCELLANEOUS ARTICLES, ORIGINAL AND SELECTED.

Section I.—Original Papers.

VII. *Remarks on Fractures, embracing a Description of an improved Apparatus for the Treatment of Fractures and other Affections of the Lower Extremities.* Communicated for this Journal by J. B. WHITRIDGE, M.D.

Such were the splendid discoveries made by the celebrated Dr Wm and Mr John Hunter, anterior to the year 1783, as almost to create a new era in the annals of surgery ;—and such have been the successive improvements by a host of others, since that period, that on a superficial view of the subject, one would almost be induced to believe, that scarcely any thing further remained to be done. But a scientific and more thorough investigation of this branch of the healing art, unavoidably leads to a different opinion ; and above all, a practical acquaintance with the diversified operations of nature, and the various means by which she may be aided and assisted in her natural and healthy actions, or restrained, or wholly controuled in her fantastic gambols and wildest frenzies, necessarily compels us to come to a very different conclusion.

Notwithstanding, therefore, the many and various improvements which have already been made, much yet remains to be done.

'What can be said of those surgeons (in the language of Desault) who, from servile attachment to a particular form of apparatus,' or a particular mode of treatment, do not consider a fracture cured unless that plan is adopted which they have derived from their teachers or have learned from their books. 'Servile imitators in an art which calls for genius

in its votaries, they are only capable of following, without reflection or judgment, the steps of their predecessors.'

An apparatus for the cure of fractures of the os femoris, (generally acknowledged to be) invented by Desault, and subsequently improved by Physick and others, according to Dr Caldwell, is the ultimatum of all improvement on this subject.* With due deference to the opinion of the learned professor, I would submit for consideration and further trial a description of an apparatus for fractures and *other* affections of the lower extremities, which I humbly conceive to be some improvement upon every other species of apparatus for similar purposes, which has hitherto come under my observation.

In the course of my surgical practice, a case of oblique compound fracture of the tibia and fibula occurred in the year 1817, in which I very much felt the want of some improvement in the methodus medendi of fractures of this description.

In October of that year, Major J. B., a very respectable old gentleman of this city, had the misfortune to fracture both bones of his left leg, about three inches above the malleoli. The fracture was so remarkably oblique and ragged, that the spine of the tibia presented a sharp spiculum of bone, which pierced the integuments, and thereby produced a compound fracture. Not being able to preserve a perfect coaptation of the bones by the ordinary splints, or by any means then in my power, in consequence of the great irritability and restlessness of the patient, the ragged ends of the bones, together with other causes which at that time existed, produced such an irritation as to occasion a strong and permanent retraction of the muscles, which unavoidably resulted in a diminution of the length and considerable deformity of the limb.

It ought to be our ambition, in this age of improvement, to restore a broken bone in such a manner that the injury shall not be perceptible without the most minute examination.

* See his opinion as expressed in the Appendix to Desault's Surgery.

Plate. 1.
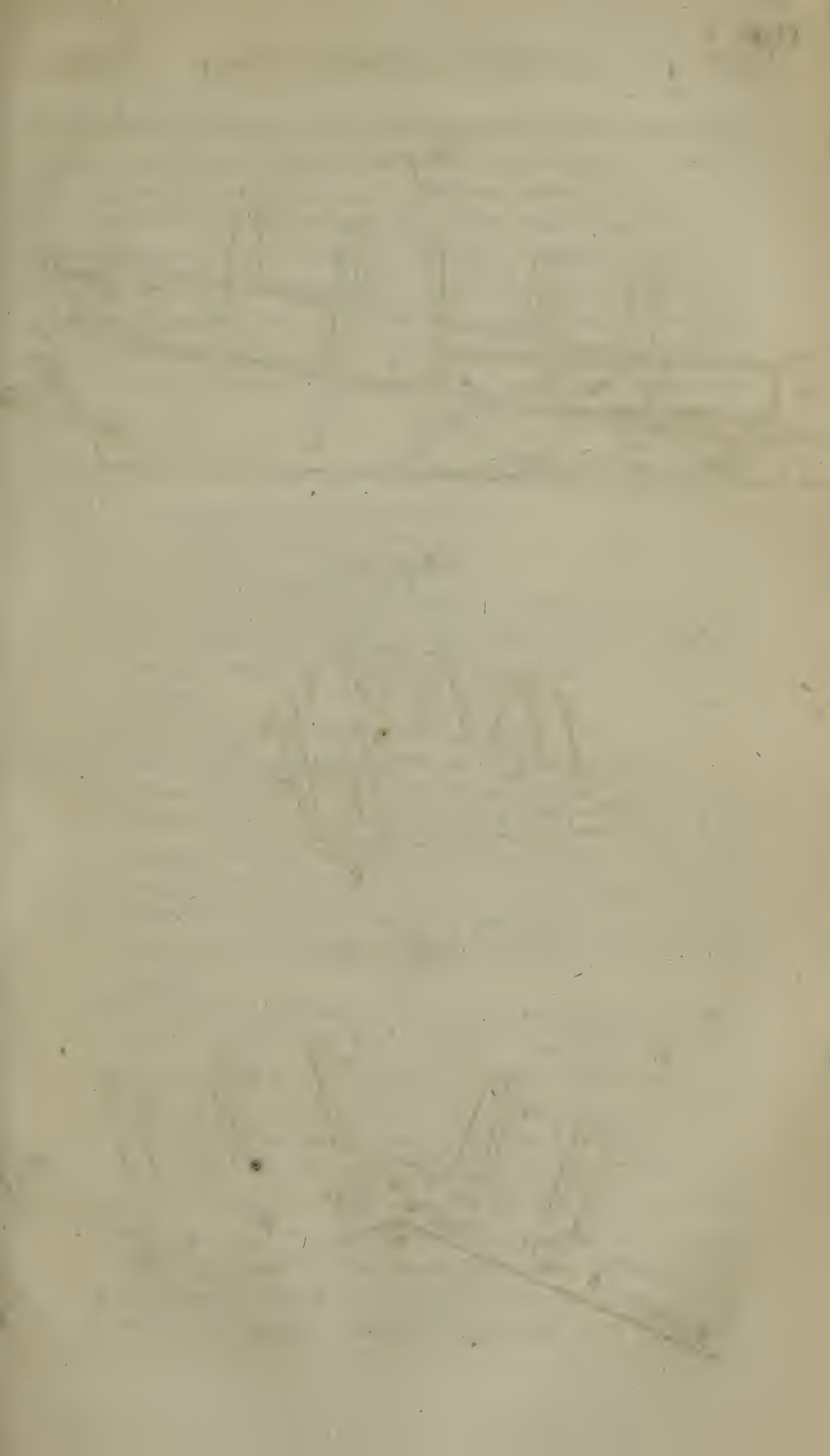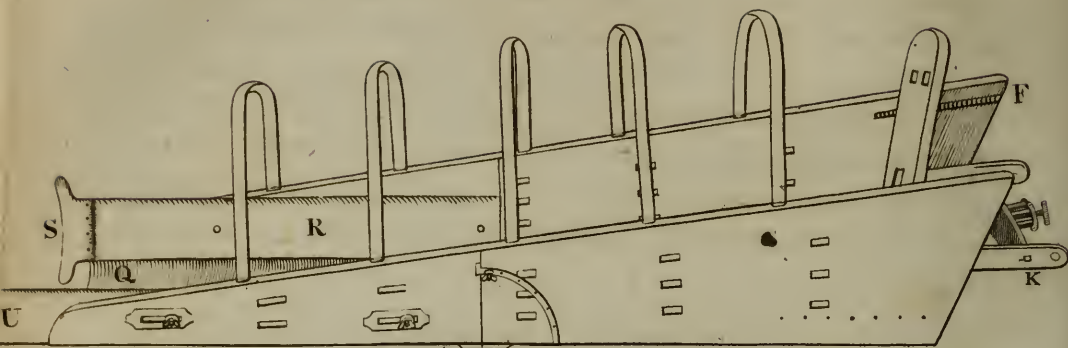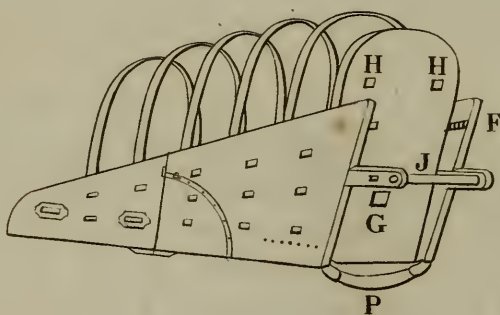
Fig. 1.

Fig. 11.

Fig. 111.
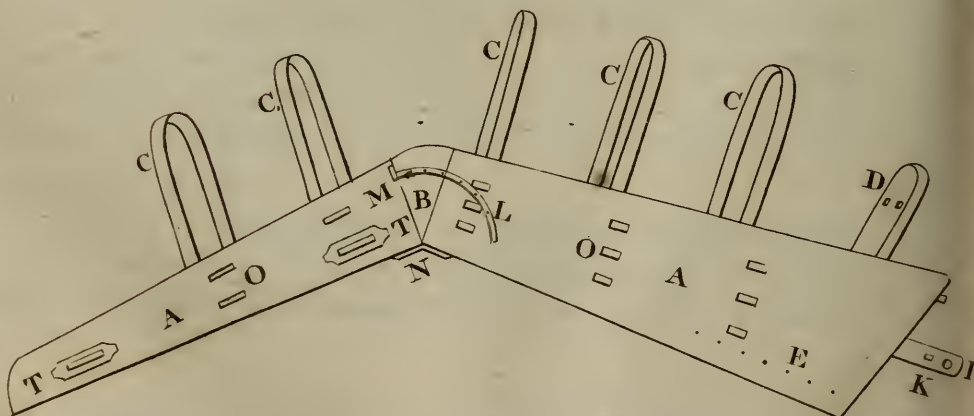
By the above case I became convinced, that so far from ever being able to effect a neat cure of an oblique fracture of the *thigh*, by simply laying the limb out upon a bed or mattrass, according to Mr John Bell,—that even in cases of oblique fracture of both bones of the *leg*, wherever the action of the muscles is considerable, some means are necessary to resist their contractile power, and to keep the fractured portions of bone in apposition.   For this and similar purposes, and on that occasion, the following apparatus was constructed.

Description of the Apparatus, with References to the Plate.

Fig. I.   Represents a perspective view.

Fig. II.   A posterior view.

Fig. III.   A lateral or profile view.

AA.   Two pieces of mahogany (Fig. III.) constituting one side, the upper portion about eighteen and the lower about twenty inches in length, and seven inches wide at the bottom.

B.   The joint, which slides into a mortise.

CCCCC.   Five whalebone hoops to support the bed clothes.

D.   The foot-board, to give support to the foot, especially in cases of comminuted or compound fractures, wounds of muscles, tendons, blood vessels, &c., without which the weight of the foot would be constantly dragging downwards, and continually bringing the extensor muscles into action, which would not only be fatiguing, but often very painful.

E.   Small holes, into which an iron bolt or pin with a brass knob is placed, for the purpose of fixing the bottom of the foot-board.   By changing this from one to another of these holes, the foot-board may be moved up or down several inches, so as to accommodate it to the length of almost any leg, for which it may be required.   That part of this machine which supports the thigh, is somewhat shorter than the thigh of the tallest adult, so that the same apparatus may be accommodated to persons whose legs vary in length six or eight inches, or more, by elevating the trunk of the body by means of a pillow or

cushion for a short limb, or elevating the machine by the same means, for the accommodation of a long one. It is also somewhat wider at the top, (being ten inches at the top and eight at the bottom) so as to correspond with the taper of the leg.

FF. A steel spring, (Fig. I. and II.) with its fellow opposite, filled with notches, that receive the foot-piece, the edges of which are defended by two brass plates that play in these notches, so as to give it a firm support. The bottom being fixed by means of the bolt before described, the top may be moved up or down at pleasure, so as to flex or extend the foot to any angle required.

G. A large mortise in Fig. II. through which a soft buckskin band or silk handkerchief may be passed when extension is necessary.

HH. Two small mortises, through which straps or bands are passed which go round the foot, for the purpose of giving it lateral support, and to prevent rotation. I have ever found it an important matter, in the treatment of all fractures of the lower extremities, to maintain a proper position of the foot.

I. A piece of mahogany dovetailed to the side in Fig. III. (corresponding with one opposite) and removable at pleasure, connected by the cross piece J, (Fig. II.) for the purpose of making extension when required; which is done by bringing the straps of a buckskin gaiter, silk handkerchief, or whatever may be used, through the mortise G, and simply tying it round the cross bar. But if a screw be thought necessary for the purpose of making more uniform and gentle extension, according to the plan of Boyer, a tourniquet may be attached to a flat cross bar adapted to the mortise K, (as represented in Fig. I.) which answers all the purposes of a fixed and permanent screw. In cases where no extension is required, in order to reduce the length of the machine, and render it more compact, this portion of it may be removed.

L. A brass quadrant, (Fig. III.) corresponding with one upon the opposite side, permanently attached at M, and pierced with several small holes, through which, after passing the side piece A, a small iron screw bolt (with a brass head) passes, which is secured by a brass thumb-nut upon the outside. By being changed from one to another of these holes,

the machine may be fixed so as to flex the thigh upon the pelvis, and the leg upon the thigh, to any angle required. By this contrivance it will be perceived that a limb may be placed in the most flexed or the most extended position, or the muscles may be relaxed to the greatest degree of which they are collectively capable, at the pleasure of the surgeon.

N. A brass hinge, corresponding with one upon the opposite side.

OO. Twelve small mortises, (the same number on the other side, but not exactly opposite) through any of which broad straps or bandages may be passed to draw the whole limb, or any part of it, from side to side, and to secure it in any situation required. They may be so applied as either to elevate or depress the end of a broken bone, or any portion of a distorted limb, or draw it to either side, as circumstances may require. By this arrangement a free circulation of air about the limb is also allowed, and the bolsters and bags of chaff of Desault, and the pads and cushions of others, are superseded; which being in a great measure non-conductors, an unnecessary accumulation of heat is avoided.

P. One of the cross pieces (Fig. II.) which connect the two lateral portions of the machine together, and the only one seen in the drawing. Of these there are six, forming segments of a circle, connected by tenons to two longitudinal pieces of wood of about two inches in breadth, which constitute the base of the frame, and to which the canvass Q (Fig. I.) is permanently though loosely attached so as to form an elastic bottom, the joint and ends of which are supported by webbing. The cross pieces are excavated in such a manner, that the canvass, which is so loosely nailed in as to form a considerable depression in the centre, does not touch them; and when a suitable feather pillow is placed in the machine, covered with a clean linen, or a coloured cambric, or calico case, the whole forms as comfortable and as easy a bed for a broken or otherwise diseased limb as can well be imagined.

Extension made at the foot, with the leg flexed upon the thigh, must obviously operate upon the leg only. The counter-extending power will be the canvass bottom, at the joint B, and will operate upon the lower and back part of the thigh. To make extension

upon the thigh, with the thigh flexed upon the pelvis, and the leg upon the thigh, the force must be applied at the upper and back part of the leg, and counter-extension made at the pelvis.

For this purpose a piece of mahogany R, (Fig. I.) about three inches wide, with a head similar to a crutch S, covered with soft buckskin, and stuffed with curled hair, is attached to the inside of one of the lateral portions, by two pins which slide up and down in a groove, and are fixed by nuts which screw up upon thin plates of brass, which are let into the wood upon the outside, as at TT, Fig. III. The upper part of the machine being wider than the middle, this piece and U, the long splint of Duverny, which is attached to the opposite side in the same manner, are beveled off so as not only to be parallel to each other, but to present a smooth even surface upon the inside of the machine. These splints, if such they can be called, may be changed from one side to the other for the accommodation of either right or left leg ; or may be retracted or extended so as to adapt the instrument to almost any case for which it may be required. When the thigh is flexed upon the pelvis, the short splint only can be used, the head of which will then rest upon the os pubis. In the extended position it will rest upon the tuberosity of the ischium, while the long splint will extend nearly to the axilla.

At the upper part of the long splint U, are two mortises (not seen in the figure) for the reception of the ends of a broad buckskin band, silk handkerchief, or whatever may be used, which connects it with the perineum, and assists in the counter-extension. Although the perineum and parts adjacent sustain the whole counter-extending force, some advantage is gained by this arrangement, inasmuch as the pressure will be in some measure divided ; one splint will operate perpendicularly and the other obliquely, and of course will not exert their force upon exactly the same points. But another important advantage is, that the force applied to the upper end of the long splint is returned to the lower end of the machine, and counterbalances that applied to the other side, and keeps the whole apparatus steady.

I have long since abandoned the use of the crutch-head for the purpose of making counter-extension at the axilla, however high and distinguished the authority by which it is recommended. Past experience assures me, that from the great mobility of the shoulder, no firm resistance is afforded,
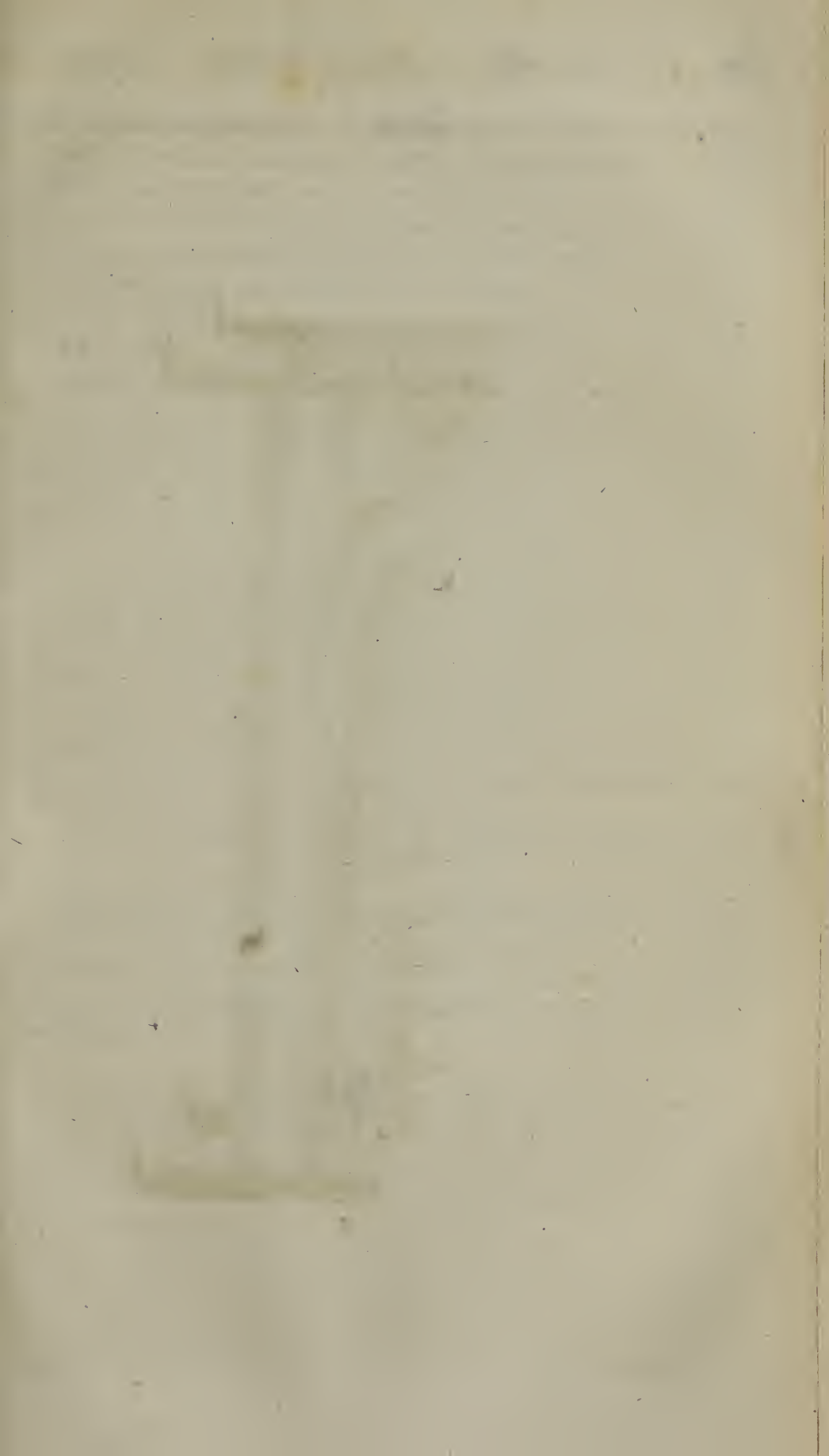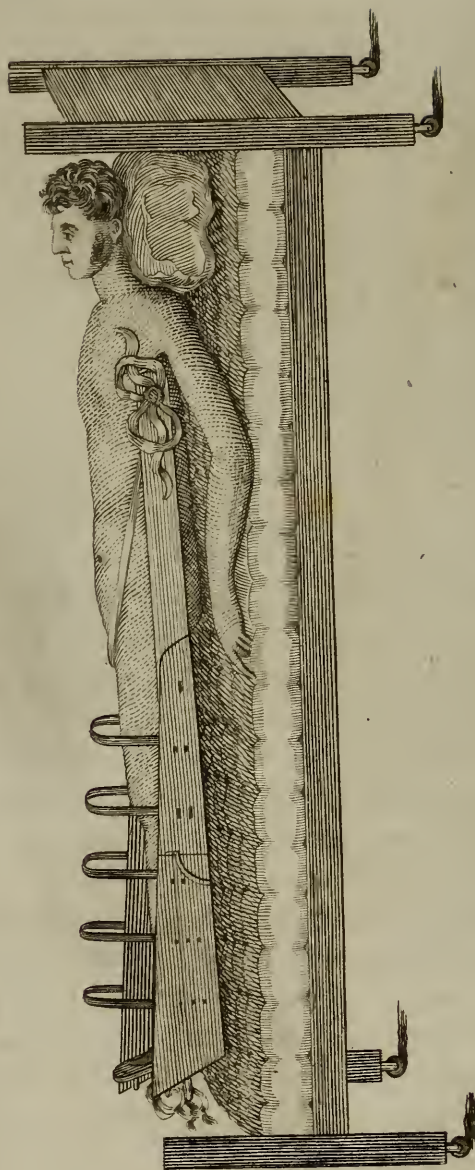
and therefore the crutch-head superadded to Duverny's splint by Dr Physick cannot be advantageously employed. If the axilla presented the same resistance to the counter-extending power that the perineum does, then the pressure from which so much mischief sometimes results, might be divided between these two points, and thereby much advantage gained. There is, however, obviously some advantage gained by using a splint which extends nearly to the axilla, inasmuch as the counter-extension is then more in the direction of the limb, and not so oblique as in Desault's apparatus, and consequently not so liable to occasion displacement, by drawing the upper portion of the bone outwards. In fractures and other diseases of the legs, both these appendages are unnecessary, and of course may be removed. In transverse fractures of the thighs, and even in oblique fracture of the inferior portion of the os femoris, especially when the action of the muscles is feeble, and a moderate degree of extension is sufficient to overcome them, the semi-flexed position may be adopted, and one of these splints, viz. the short one, will be sufficient. In oblique fracture above the middle, the extended or straight position is to be preferred, and both splints will then be necessary.

Plate II. Represents the whole apparatus applied to the limb.

Much has been said of the absolute necessity of the extended position of a limb in all cases of fracture of the os femoris. I am inclined to think this is true only in oblique fractures of the upper portion, or in cases of fracture of the head or neck of that bone.*

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* Fractures within the capsular ligament, according to Sir Astley Cooper, never unite by ossific granulations, but by ligamentous substance, owing, as he confesses, to the parts not being kept firmly in contact. May not this be the fault of the apparatus, or the mode of treatment, or perhaps both? He thinks fractures of the cervix femoris, without the capsular ligament, may be kept in contact, and firmly united by bony concretions or callus.

For my own part I cannot conceive why the same means should not prove equally successful in both cases, unless it is owing to some difference in the organization of the parts. There is, I am aware, a well known difference in the cancelli, and in the density of the general substance of the head and neck of the bone, which I should suppose would afford a more satisfactory solution of the question.

The action of the psoas magnus, iliacus internus, triceps, adductor femoris, the gluteal and other muscles situated about the pelvis, particularly the long head of the triceps, the gluteus maximus and psoas magnus, are so strong as to require the limb to be placed in an extended position to enable the operator to make sufficient extension and counter-extension to overcome the action of these and other muscles concerned.

It is obvious, that the higher a fracture takes place, the greater the number of muscles which act upon the inferior portion of the fractured bone, and consequently the greater the retraction of the limb, and the greater the extending and counter-extending force required. In a fracture of the head or neck of the femur, we have to resist the action of nearly all the muscles situated about the pelvis, and most of those of the thigh ; in short, all the muscles destined to move either leg or thigh which have their origin at the pelvis.

With regard to position, without entering into an elaborate discussion of the subject, as to the relative merits of the flexed or extended position, I will only observe further, that as far as my limited experience goes, I am led to the conclusion, that although a patient may by habit and good moral discipline be brought to bear the pain of extension and counter-extension in the straight position, and consequently the continued action of the extensor muscles, with a tolerable degree of comfort, the flexed position, so much advocated by Mr Pott, Mr Charles Bell, Sir Astley Cooper, and most of the English surgeons, is, upon the whole, the easiest ; and as it behoves us at all times to endeavour to diminish the sufferings of our patients as much as possible, we ought ever to adopt those means which contribute most to that end. In transverse fractures, and in almost all oblique fractures of the leg and lower half of the thigh, the flexed position may be adopted by means of the above apparatus. This apparatus possesses all the advantages of the doubly inclined plane of Mr Charles Bell,* together with

* A machine upon this principle, originally invented by Mr White of Manchester, and subsequently improved by Mr James of Hoddesden, has been in use in Guy's Hospital for more than five and twenty years past, for fractures of the os femoris.—*Vide Cooper and Travers' Surgical Essays, page* 261.

those of the foot-board, the lateral bands, the means of extension, counter-extension, &c.

The flexed position of the arm, Desault long since demonstrated to be the best, by his angular splint for the elbow, and which the experience of Dr Physick and others in this country abundantly confirms.

One of the principal objections which most of the French surgeons make to the flexed or semi-flexed position of the inferior extremities (and indeed all those who exclusively advocate the extended position) is, the difficulty which they apprehend exists in comparing the two limbs with each other, supposing but one to be broken. Now I cannot conceive why points and angles may not be as accurately defined and compared, and their respective distances as clearly marked, in a crooked as in a straight line. In fractures of the lower extremities, according to my plan of treatment, the patient is placed upon the back, and if the fractured limb is flexed to any particular angle, the other, if it is a sound one, may certainly be flexed to the same angle ; then where, I would ask, is the difficulty in comparing the several points and angles, the patellæ, the tuberosities of the tibiæ, the malleoli, the ossa calcis, &c. If both are broken, the difficulty of comparison, I apprehend, is as great in the extended, as in the flexed position.

As confinement to the bed from three to six weeks or more will be necessary in almost all fractures of the lower extremities, my experience leads me to recommend that the patient be placed on the back. The back presents the greatest surface, its superficies afford the most points, and will in general best sustain the weight of the body. This position too is the most convenient, not only for the application of mine, but of every kind of apparatus.

We are told in the Memoirs of the Academy of Surgery, that " three or four months are often necessary for the healing of fractures of the os femoris." The immediate or proximate cause of this tardy operation, no doubt, is, MOTION.

Whenever a cure is so protracted, there is reason to apprehend either some neglect on the part of the surgeon, some fault in his mode of treatment, or some imperfection of his apparatus, as the sequel will by and by show.

The relation which the fragments bear to each other is not uniformly supported, nor are they maintained in a sufficiently passive state to admit of a speedy re-union, but are suffered to act upon each other by the power of the muscles. And hence, the success will be in proportion as the arrangement of the fragments are more or less frequently interrupted.

Nature certainly does not require so long a period to repair an injury of this kind when duly assisted by art, unless perhaps in some very old and superannuated subjects. And even among those, where the vis medicatrix naturæ is adequate to effect the reunion of the bones at all, it is presumed there are but few, if any, to be met with in such a state of decrepitude as to require three or four months to complete the cure, provided proper means are employed, and due attention paid throughout the treatment.

We hear very little complaint of a want of timely success in fractures of other bones of the body, especially those of a smaller class. And why? The reason is obvious; because the muscles which act upon them are less powerful and oppose less resistance to the mechanical means employed to overcome them, consequently there is less difficulty presented in keeping the fragments in their proper position.

Reasoning from analogy, we should suppose, ceteris paribus, that the os femoris when fractured was capable of reuniting at least as soon as any other bone of the extremities. It is situated nearer the fountain of circulation; is better supplied with blood-vessels and nerves; has more sensibility, more animal heat; in short, more of the vital principle than bones which are more remote. We should therefore conclude, that so far as a physical reparation of the fractured portions depends upon the action of its own vessels, the femur would recover sooner than many other bones, all other things being equal.

To keep the ends of a broken bone in apposition, and the limb immoveably fixed in the easiest possible position during the process of ossification or the formation of callus, has long been a desideratum in surgery. To attempt or to expect to cure fractures without keeping the parts uniformly in

contact, or nearly so, and without rest, appears to me altogether chimerical, whatever may have been said to the contrary notwithstanding.

Mr Amesbury, of London, has lately published an account of an apparatus, by which he proposes to cure fractures of the lower extremities, and yet permit his patients ' to ride or walk about at pleasure' during the process.* Having never seen this instrument, I am both unable and unwilling to controvert the position. The apparatus being complicated, and the description of it unaccompanied by a drawing, is consequently obscure.

What success those can have who indulge their patients in a perpetual motion, or who recommend an occasional or daily† extension to be made upon the limb, I am unable to say. Such measures I certainly should not expect would be successful in my hands.

The union of soft parts, even integuments and muscles, which are subject to motion, is oftentimes attended with great difficulty. I have several times known the operation of a hare-lip unsuccessful until after two or three attempts, in consequence of the crying of a child. And if soft parts fail from this cause, which so readily unite by adhesive inflammation when kept uniformly in contact, how much more liable must the firm hard bones be to a failure in this respect, the re-union of which is comparatively so slow, tedious, and oftentimes difficult, especially in old persons, even when a perfect adaptation of their fractured surfaces is uniformly preserved !

Motion at that point, where the solution of continuity has taken place in a bone, is liable to produce what has inaptly been called an artificial joint, but which, I think, might with more propriety be said to be a joint produced for want of art. It is on account of motion, that the cure is so protracted in some cases and artificial joints produced in others. As far as my observation and experience go, extension, when-

* Medico-Chirurgical Review, Vol. III. p. 920.

† Principles of Surgery.—Philosophical Journal, &c.

ever extension is necessary, should be *uniform and perma-nent.*

In making this remark, I am aware that I am controvert-ing some very high authorities, among whom are Mr John Bell and Dr Davidge of Baltimore. But my convictions are not the less strong, on that account. And in transverse fractures and other cases which require no extension, it is not the less necessary to preserve a uniform and perfect coaptation of the bones.

My military reminiscences furnish a case which occurred at the battle of Little York, in Upper Canada, of a soldier. by the name of M'Minn, who had the radius and ulna both broken, the former in two places, by a shower of stones, which was occasioned by the springing of a mine and blow-ing up of the fort by the British, just as our troops were getting possession. The gallant general Pike, who led the troops upon this occasion, fell a victim to the explosion. In consequence of the heavy duty which devolved upon the regimental surgeons after the battle, and the want of com-fortable accommodations for the sick and wounded, M'Minn was either neglected or badly treated by those who first had charge of him. Union of the bones took place, but with great distortion of the limb. About three weeks after, he was removed from the hospital of the regiment to which he belonged, and placed in the general hospital, under the charge of a gentleman of distinguished ability and great ex-perience (and one of the senior officers of the medical staff) who thought proper to break up the newly formed connec-tions and reduce the fracture secundum artem. This was done, and suitable splints and dressings applied ; but the sur-geon was never able again to unite the bones. An artificial joint was the consequence. The arm was almost as flexible in the middle as at the elbow or wrist.

The vicissitudes incident to the sick and wounded of an army during the active operations of a military campaign, subsequently placed this brave Hibernian under my imme-diate care. Although at the time in fine health and spirits, and able to lift almost as much in a perpendicular direction

with the broken arm as he ever could, he was at the same time unable to raise a pound weight with the arm in a horizontal position.   The fracture of the bones did not destroy or materially diminish the power of the muscles.   They only seemed to require a lever, or something to act upon, as the wheel of the pully in the horizontal position.

In preference to the seton first introduced into notice by Baron Boyer in France, and on this side of the Atlantic by our illustrious countryman Dr Physick, I proposed to dissect out the intermediate portion of bone, which was about one and a half or two inches in length, and, by means of Hay's saw, to remove a section of each fractured portion of the radius and ulna, with a view of exciting sufficient inflammation to produce healthy action, with a hope, and in the expectation, that the secerning arteries would throw out sufficient ossific or cartilaginous matter, to supply the deficiency of bone, and thereby restore the strength and usefulness of the limb.*   The operation was objected to, and consequently abandoned, the unfortunate soldier placed on the pension list, and finally discharged from the army.

The idea of extending a fractured limb a little beyond the length of the sound one, especially in oblique fractures of the os femoris, was suggested to me by two cases which occurred in the winter of 1819 and 20, in which I tried the effect of it with good success, and have ever since had reference to this circumstance in the treatment of all oblique fractures.†

It should be recollected, that by fixing the pelvis as firmly as possible and making extension upon a sound limb, it is capable of being considerably elongated by the yielding of the ligaments of the joints.   The same will hold good in making extension upon a fractured limb.   The ligaments of the joints will yield somewhat as well as the muscles.   A

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* According to the experiments of Sir Astley Cooper, the intermediate space between the fragments of bone which do not actually touch, is not filled by bony, but by ligamentary or cartilaginous matter.

† This idea also attracted the attention of Dr Flagg, and has been judiciously noticed in his paper in this Journal, on fractures of the os femoris.

limb may, therefore, be considerably elongated without placing the ends of a fractured bone asunder. And in oblique fractures, without some precaution of this kind, there will be a very great liability to a shortening of the limb. The degree of extension required, depends on a variety of circumstances, and can only be governed by the experience and judgment of the surgeon.

In making extension and counter-extension, some attention will be necessary in the choice of the materials we make use of for this purpose, as well as to the mode of their application. The gaiter, on account of covering a greater surface, and embracing the foot and ankle more generally, is preferable to any other mode of applying the means of extension ; and buck-skin for this purpose, and for the counter-extending and lateral bands, is preferable to most other materials, as being softer, more elastic, and consequently less liable to excoriate. Even these, under some circumstances, require the aid of soft pads, as in old, emaciated, and in delicate female subjects, the texture of whose skin so easily suffers abrasion ; and if the means are persevered in, is sometimes followed by ulceration, especially when the fracture is in the upper third of the os femoris, and the force applied necessarily severe.

The long continued pressure of a silk handkerchief (an inelastic substance, which, according to the usual mode of application, operates upon two points only) sometimes produces ulceration and sloughing at the tendo Achilles and instep.

In the spring of 1825, a circumstance of this kind occurred in the case of an old lady eighty years of age, who had the misfortune to fracture the os femoris at the cervix. And in another instance, ulceration wherever the handkerchief was applied, whether above the calf of the leg or knee.

Long continued pressure from any extending power, even though it be slight, is not only irksome but liable to produce these mischievous effects, and thereby in a great measure to defeat the object in view.

Hence, it may be inferred, that in delicate subjects, too

much attention cannot be paid, in the first instance, to the selection of the softest and most delicate materials for this purpose.

The arm of a lady's kid glove, stuffed with carded cotton, makes a very neat pad either for the perineum or ankle.

With the apparatus above described, the common short splints will not be essentially necessary, but as an accompaniment they will in general be found useful auxiliaries in fractures of the leg and thigh below the upper third ; and I would therefore recommend them, inasmuch as they embrace the parts closely and prevent any lateral displacement, either by spasms, sudden emotions, or starting during sleep, in consequence of dreams, to which patients under such circumstances are liable. In fractures above the trochanter, they are of no use.

The only other dressings required (except in cases of compound fracture) is the eighteen tailed bandage, or, what is perhaps preferable, Scultet's bandage of strips, over which the whale-bone, the palmetto,* or paste board splints, properly padded, may be placed and secured with straps or pieces of tape.

This apparatus affords every necessary facility for the application of the eighteen tailed bandage, or any dressings which may be required for a compound fracture or other disease of the limb. And simply for the fractures of the leg, it will I think be perceived, that this apparatus has some decided advantages over that contrived by the late Dr James Hutchinson, especially in cases of fracture near the knee; and in all cases the irritation of his counter-extending bandages will be avoided. And from the manner in which his counter-extension is made, especially where the action of the muscles is strong, and much force is required to overcome them, the circular bandage to which the splints are

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* The palmetto (chamærops of Elliott) found about the shores of Carolina and Georgia, affords an excellent material for the construction of splints for ordinary purposes—the woody substance of which is softer than paste board, and not like that liable to bend on being wet.

attached, is not only liable to excoriate the parts, but is also liable to obstruct the circulation.

In the progress of the cure of almost every simple fracture, friction with a flesh-brush after adhesion has taken place, will be found to be a very useful auxiliary means of exciting cutaneous action, of stimulating the parts generally, and thereby promoting the healing process.

A more simple apparatus than that above described I have sometimes made use of in fractures of the os femoris, especially when those accidents occurred in the upper part of that bone. It is constructed somewhat upon the principles of Desault, and is a modification of Hartshorn's improvement.

It consists of two boards, each about seven inches wide, one of which extends nearly to the axilla, with two mortises near the top, for the reception of the counter-extending band, which connects it with the perineum. The other has a head similar to a common crutch, covered and stuffed like the other apparatus, and which presses against the tuberosity of the ischium. The lower extremities of these two boards extend about six inches below the foot, and are firmly connected by three cross bars which are pinned upon the outside, over either of which extension may be made simply by tying, or by attaching a tourniquet, as may be found most convenient.

Through the sides of each of these pieces are several mortises for the reception of straps or bandages, which are passed round the limb and tied on each side to the bars between them, for the purpose of giving lateral support, and fixing it as firmly as possible, as in the other apparatus, and which in general supersedes the necessity of bandages round the body, which were so distressing to the 'imagination' of Mr John Bell.

This simple contrivance may be got up at short notice and with very little trouble, and answers nearly all the purposes of the more complicated apparatus for the extended position alone, the advantages of the foot board and canvass bottom excepted, which are by no means inconsiderable. To take

off the weight of the bed clothes, which would of course increase the difficulty arising from a want of support to the foot, a hoop may be attached.   The length of these splints is such, that if the patient lies upon a soft mattrass or feather bed (which, from the long continued confinement in one position it is necessary for him to do) unless the limb is well supported, I may almost say suspended by lateral bandages, it is liable to sink down in the middle by its own gravity as well as that of the trunk, as every one practically acquainted with the application of such splints must be aware; and thus, with all the extension and counter-extension, the process may perhaps produce a crooked limb at last.   This difficulty is entirely obviated by the canvass bottom of the other apparatus, upon which the limb lies both firmly and easily.

It is true some support may be given to the centre by means of the many tailed bandage, and the short splints in common use, but these must be kept very tight and uncomfortable to prevent the evil complained of; and it is not always easy to preserve a uniform arrangement of the dressings, and the same degree of pressure, under all the vicissitudes to which a limb is subject during the process of osteogony, or the formation of callus.

At one time, all the circumjacent parts are inflamed and swollen; at another, perhaps in a state of suppuration; and, at a third, shrivelled and emaciated.

From these circumstances, without constant vigilance and attention, they are liable to become too tense at one period and too loose at another, and instead of subserving the useful purpose for which they were designed, they become a source of irritation and an incumbrance to the patient.

Desault, aware of the difficulty to which I allude, recommended the use of a hard mattrass placed upon a bedstead with a plank bottom, the distress arising from which may be avoided by the foregoing plan of treatment.

If the reader's patience is not already exhausted by a subject, the details of which are necessarily dry and uninteresting, the effect of these principles may be further illustrated by the following case.

This case is not selected because it is peculiarly adapted to explain the physiological principles of the disease, or the mechanical principles of the apparatus used for its removal, but because it is a formidable one, and presents difficulties which seldom occur, and such as will rarely be met with in private practice. Besides, it shows the insufficiency of the vis medicatrix naturæ to repair the injury which nature herself sometimes sustains ; and when, and how far, art may interpose to mitigate the sufferings of humanity, and restore the natural and healthy actions of the human system.

Capt P——, an active, enterprising young man, then second officer of the ship —— Capt N—— master, was wrecked at sea in a gale of wind, in the month of February, 1818. During the violence of the gale, which carried away some of the masts and spars, a sea was shipped which completely swept the deck. Mr P—— providentially escaped being washed overboard with some of the crew, by clinging to the shrouds. In the midst of the disaster the long boat was dashed against him, and his hip severely shattered. He remained at sea in this deplorable condition for thirty-five days. On the arrival of the vessel in port, he was taken to the marine hospital, where three attempts were made on successive days, to reduce what was conceived to be a luxation at the hip-joint.

A stanchion was erected, which served as a counter-extending power. Prodigious extension was then made by means of a ship's block and tackle which overcame the contraction of the muscles, and drew the limb down sufficiently ; but instead of remaining in its proper situation, it would immediately recede on relaxing the pulley, which led the operators to conclude that during the period which had elapsed since the occurrence of the accident, the acetabulum had filled up and become quite obliterated, and that this circumstance prevented the reception of the head of the os femoris into its former cavity. The case was abandoned as incurable, and the man discharged from the hospital.* Ap-

* This was the statement of the patient, and his friend Capt N——.

plication was then made to me, and the patient placed under my charge.*

I found him on crutches in a most horribly distorted condition; his left leg, about four inches shorter than the other, hung dangling by its side; the foot and knee turned outwards at right angles with the other; the trochanter major turned backwards, and resting upon the dorsum illii. On a critical examination of this case, I found it to be a fracture of the cervix femoris. The head of the bone could not be felt; the eversion of the foot, the subduction of the trochanter, the small arch of a circle which it described on rotation of the limb, and all the symptoms and circumstances of the case, confirmed the opinion.

He was directed to be placed in bed, and to have the muscles of the pelvis and thigh lubricated and softened by being well rubbed every two or three hours with the camphorated liniment. This was continued for two days. Their stiffness and rigidity being then in some measure overcome, I applied the modified apparatus above described, and made gentle extension at the foot. The lubrication was continued, and the extension and counter-extension increased, for four days, at which time the foot, without any very great degree of pain or suffering, was brought down to the length of the other, so as to enable me to place the ends of the fractured bone in contact.

This being effected, the parts were adjusted so as to restore the symmetry of a well made person, and maintained in their proper situation by the lateral bands; a proper position of the foot established, and uniform and permanent extension made. This was continued for six weeks, at the end of which time he was suffered to get up and use his feet, and with the help of crutches to walk about at pleasure. These were soon thrown aside, and Mr P—— embarked for Boston; after which I did not see him until the last season. He then called on me, without crutch or

* In the subsequent treatment of this case, I was kindly assisted by a medical friend, for whose politeness and attention I would make due acknowledgment.

stick, as the master of a fine ship, exhibiting a sturdy ap-
pearance, with but a slight deformity or shortening of the
affected limb, which did not in the smallest degree incapaci-
tate him for the performance of any of the duties of his pro-
fession.

This case proves that bones may re-unite long after the
occurrence of the accident which separates them, provided
they are kept uniformly in apposition. And I apprehend
that want of similar success in M‘Minn's case must have
been for want of those means and that discipline which is
necessary to preserve injured parts in a state of perfect qui-
escence, as well as to preserve the constitution from the
baneful influences of such potations as lead to an occasional
or an habitual inebriation, a practice to which M‘Minn had
been unfortunately addicted.

It also proves, that the long continued contraction of the
muscles and the consequent shortening of the limb may be
overcome by efforts comparatively mild, when those efforts
are uniform and permanent. Whilst means far more pow-
erful, which are transient in their operation, would be una-
vailing.

‘ I will close this article by a few remarks on the advan-
tages of permanent extension in old fractures. Nature re-
unites fractures differently, according to the relation of the
divided surfaces to each other. Are those surfaces in per-
fect contact ? If so, they are chiefly instrumental in the
formation of callus, which then probably acts in a manner
similar to the re-union of wounds. On the other hand, does
an overlapping of the fragments separate the divided surfaces
from each other ; the re-union takes place then principally
on the sides, by a kind of enlargement of the bones, pro-
duced no doubt by the periosteum. Such is the mode of
consolidation, which, on opening dead bodies, is found in
most oblique fractures of the os femoris, succeeded by a
shortening of the limb.

‘ Hence it follows, that this shortening, which would rea-
dily yield to extension, at the time of the fracture, becomes
obstinate in its resistance, in proportion to the age of the

accident. In such a case, indeed, the substances destined to re-unite the overlapping fragments, acquiring daily more and more solidity, oppose to the reduction obstacles constantly increasing. Hence, most practitioners regard this reduction as beyond the resources of art, after the expiration of the twelfth or fifteenth day. Nor is this opinion entertained without some foundation ; for at a later period, almost all efforts at reduction, however powerful, have proved unavailing.

But that which cannot be performed by a very powerful effort, acting momentarily, is notwithstanding, oftentimes easily attainable by a much weaker one, provided it be long continued.'*

Among the variety of machinery, both ancient and modern, with which the profession abounds, and the mass of apparatus which the world has seen, Dr Davidge, in the Baltimore Philosophical Journal and Review, recommends (if machinery of any kind is employed) " the fracture bedstead" upon the plan of Mr Henning.

I shall omit any discussion of the subject as to the relative merits or demerits of the many mechanical contrivances which the talents and ingenuity of surgeons have presented to the public, leaving that to the discrimination and judgment of those who may be called to use them.

Before quitting the subject, it may be necessary to observe, that in almost all fractures of the lower extremities, there is more or less difficulty in the use of the bed-pan. This difficulty may be in a great measure obviated by the use of the apparatus represented in the drawing. The leg being supported on the canvass bottom of the machine, two assistants can easily raise the patient sufficiently to admit the bed-pan.

I would, however, recommend Jenk's elevator to those who have it at command, as being the best mode of elevating a patient, either for this or any other purpose.

Charleston, South Carolina, April, 1827.

* Desault's Surgery, page 254.

VIII. *A History of the Erysipelatous Inflammation that recently appeared in the Massachusetts General Hospital.* Communicated for this Journal by GEORGE HAYWARD, M.D.

THE occurrence of erysipelas in this institution, and its occasional appearance there for several months, have excited no small degree of attention, and have given rise to exaggerated and false statements of its extent and fatality. With a view to correct these, as well as to exhibit facts as they really existed, I have been induced to draw up this article.

1. The first case of this disease occurred in April 1826. The patient was a large muscular man of about 25 years of age, from the country, who was admitted in consequence of having been run over by a loaded wagon, a few hours after the accident. The os femoris of the left side was fractured, a deep wound was made on the outside of the right thigh, which penetrated to the bone, and there was a severe compound fracture of the little finger of the left hand, which made its removal necessary. The accident occurred on the 8th. A disposition to gangrene appeared in the wound of the thigh on the 11th, and some marks of erysipelatous inflammation on the surface of that limb. This inflammation continued to increase, and extensive sloughing soon took place from the wound; and though it was dressed twice a-day, and the most powerful antiseptics used, the fetor was nearly insupportable. The patient continued to sink; the erysipelas extended over both lower extremities; the sloughing and offensive discharge increased; he was very restless and in great pain, till two days before his death, when he became comatose, and at length died on the 2d of May. There was reason to believe that he had been habitually addicted to the immoderate use of ardent spirits. The ward was fumigated, before and after his death, with the gas of chlorine, and all means that were practicable while the patients remained in it, were employed to purify it. As soon as he was dead, every thing connected with his bedding establishment was removed, and the

mattrass on which he had lain was so much injured that it was never used again in the house.

2. The subject of the second case, a healthy young man, was admitted in consequence of a fracture of the tibia and fibula of the left leg just above the ankle. The accident occurred on the 8th of June, near the Hospital, and the patient was brought immediately there. On the 12th there was some appearance of erysipelatous inflammation about the ankle, and on the 16th it had extended up the leg, and appeared also on the face about the left eye. The disease now rapidly spread, the face and whole head became enormously swollen, a black spot showed itself on the limb near the ankle, and the patient was affected with a violent delirium. These symptoms were unabated till the 26th, when a favourable change took place, and the inflammation gradually subsided, without the occurrence of sloughing. By the 1st of July the disease was nearly gone, but on the 11th there was a slight return, which continued a day or two only, for there was no vestige of it on the 16th ; he was discharged August 2d, perfectly well. It may be perhaps worth while to remark, that during the violence of the erysipelatous inflammation, there seemed to be no disposition whatever in the bones to unite. This patient occupied a ward on a story below the one in which the other patient died, and between the wards occupied by these patients there was no communication.

3. On the 15th of June, a young man labouring under fever, was suddenly attacked with erysipelas, which appeared first in the face, and spread with great rapidity, affecting the eyelids to such an extent as to close the eyes completely. He was delirious from the first appearance of the erysipelatous inflammation, and sunk under it on the 18th. He was of course under the care of the physician.

4. The next case occurred on the 21st of June, in a medical patient, who was just recovering from a severe attack of continued fever, by which he was extremely reduced. The disease showed itself about the face and head, and the patient died on the fourth day after its appearance.

5. On the 27th of June a large tumour, situated near the angle of the jaw, was removed from a healthy woman of about 40 years of age.   The operation, from the size and situation of the tumour, was necessarily severe, and the external carotid artery was tied.   All appearances were favourable till July 1st, when there was a slight indication of erysipelas on the right cheek under the eye ; the wound however continued to look well.   On the 2d the disease had extended, and the wound began to assume an unhealthy aspect.   The eyelids were so much swollen as to close the eyes, and the patient was delirious.   The inflammation continued to increase daily, suppuration took place about the upper eyelids, the wound assumed an unfavourable aspect, and began to slough.   On the 8th she was decidedly worse ; her pulse was small and rapid ; the delirium very much increased ; she had had no sleep for forty-eight hours, and refused to take both medicine and food.   Some sleep having been procured on the night of the 8th, she was found better on the following morning.   She became more rational on the 10th ; the inflammation was subsiding, and in a day or two the wound began to granulate ; and on the 4th of August, it being entirely healed, she was discharged well.

6. A medical patient, who had been labouring for a long time under ascites and general anasarca to such an extent as to render her case hopeless, but who was in a much more comfortable state than she had been for a length of time, was suddenly attacked on the 21st of July with erysipelatous inflammation on one of the lower extremities.   It spread with great rapidity, and assumed a violent character, and proved fatal on the 23d.

It may be proper to remark, that the first case was the only one that had hitherto occurred in the ward in which the disease originally appeared, though all the cases mentioned had been confined to that side of the house.

7. On the 9th of September, however, a man was admitted with a scrophulous disease of the testis, into the room in which the first patient died, and on the 17th he was attacked with erysipelatous inflammation about the ankle of the

right leg.   This extended to the thigh, and afterwards appeared on the head and face.   It began to subside on the 23d, was very slight by the 26th, and on the 30th he was entirely well.

8.   On the 29th of September, a man, of a bad habit of body, with an ulcer of long standing about the tendo Achillis, was admitted into the upper ward of the other side of the house, as remote as possible from the place in which the disease had hitherto appeared.   On the 3d of October, erysipelas was discovered on the leg about the ankle, and in course of the day extended up to the groin.   It was more extensive on the following day,—the mind was wandering, the pulse feeble and rapid, the tongue parched, and the skin hot and dry.   All his symptoms had gradually become worse till the 7th, when vesications appeared on the limb, and he continued to sink till the 10th, when he died.   This patient's system was much impaired by intemperance.

9.   A medical patient, who was convalescent, was attacked with erysipelas about the right ear on the 26th of October.   It extended on to the side of the face and temple, down the neck, and upon the scalp, with considerable redness and swelling, and some vesication.   In a day or two the disease subsided in some measure on this side, and appeared in a much milder form on the other.   It never assumed a very serious aspect, and entirely subsided by the 31st, and he was discharged well on the 11th of December.

10.   A girl, of about 15 years of age, with scrophulous ophthalmia, was affected with erysipelas on the face about the last of October.   The disease in her case was comparatively mild, and nothing unusual occurred in the course of it.   It continued four or five days only, without any violent constitutional symptoms, and at the end of that period, she was as well as usual.

11.   A healthy girl, eighteen years old, who had been in the hospital a few weeks with an ulcer on the leg, was attacked with erysipelas about the head, on the 7th of November.   It extended over the whole face in the course of two or three days, so as to close the eyes, and produced an

enormous swelling of the head, attended with deafness. In this case however the symptoms were not of the worst character; the mind was not in the least affected, and in a fortnight from the attack, the patient had recovered her health entirely.

12. The next case of this disease occurred in an unhealthy man, of a scrophulous habit, 34 years of age, who had his left testicle removed on the 23d of December. For a few days after the operation, every thing appeared to be going on well, and the wound was rapidly healing ; but on the night of the 31st he was seized with a violent rigor, followed by a hot fit, and pain in the right arm, though there was neither swelling nor redness. On the morning of January 1st, the arm was considerably swollen and discoloured, the colour however was much darker than is usual in erysipelas. The pulse was very rapid and feeble, the tongue parched, and the skin hot. In the course of the day he became delirious, and died in the afternoon.

13. A man 32 years of age, who had been in the hospital about three weeks for an abscess on the head, of which he was nearly well, in the same ward with the last patient, was attacked in the night of the day on which the other died, with a chill followed by great heat. In the morning the disease appeared about the head and face, which were much swollen, and almost covered with vesications. The disease began to subside on the sixth day, and by the tenth was nearly gone. During its progress, suppuration took place in the upper and lower eyelid of the right eye, and in the lower eyelid of the left eye, and openings were made in them, by which a considerable quantity of pus was discharged. An abscess also formed on the head behind the right ear, which was opened ; the original one, on account of which he came to the hospital, was on the left side. After all the symptoms of the erysipelas had disappeared, and the patient was about taking his discharge, he was attacked in the night with an epileptic fit, to which he had been subject. He stated in the morning that he had had a slight one the preceding night ; he seemed as well as usual ; a

light diet and a cathartic were ordered for him, and he intended to go home the next day. In the night following he was seized with another fit, and expired in a few moments, before any one in the ward could get to him.

14. On the night of the 6th of January, four days after the attack of the last patient, a man in the same ward, labouring under chronic diarrhœa, in a state of extreme debility, without the slightest prospect of recovery, was seized with a chill, followed by heat, with soreness about the ear. He soon became delirious, and continued to sink, till the afternoon of the 8th, when he died.

15. A healthy man, on whom the operation of tying the external iliac artery had been performed on the 25th of November, was the next subject of this disease. All his symptoms after the operation had been favourable till the 25th of December, when a swelling appeared between the spine of the ilium and the wound ; this suppurated and was opened on the 31st. In a few days after, erysipelatous inflammation made its appearance in the neighbourhood of the opening, extending for a few inches on to the abdomen ; it yielded however soon to the remedies employed, though the wound was slow to heal, and the patient was not discharged well till the 16th of February. This patient was in a part of the house very remote from the three last.

16. A medical patient, in a ward adjoining the one in which the disease first appeared, was attacked on the 7th of January with swelling and redness of a deep colour of the left eyelids. In the course of the day the redness and swelling did not increase, though he complained of great soreness of the face. The erysipelas in this case never assumed a very threatening or severe character, but subsided almost entirely in the course of three or four days. The patient was a man of regular habits and good constitution, and not much debilitated by his previous disease.

17. About the time that the last patient was attacked, a female, in whom the brachial artery had been tied, was affected with erysipelas. It appeared particularly about the arm, though it extended somewhat up the neck, and there

were some slight appearances of it on the body.   She reco-
vered in the course of three or four days.   It should be ob-
served, perhaps, that she had been in the house several
months, and during that period had had several attacks of
the disease, all of which however were mild.

Thus it appears that no less than six cases of this disease
occurred within a week, three in the ward in which the first
patient died, one in the adjoining one, and the other two in
remote parts of the house.   This was a very large number,
when compared with the number of patients in the institu-
tion, as it constituted one-tenth of the whole.   Hitherto the
disease had excited but little alarm, as there had rarely been
more than one or two cases at the most at a time, and usual-
ly a very considerable interval elapsed between them, so
that not a suspicion had been excited that it was owing to
any peculiar state of atmosphere in the hospital.   The as-
pect of things was now however entirely changed, and the
medical attendants recommended to the trustees, that no
more patients should be admitted at present ; that all who
were in the house should be discharged as soon as it could
be done with safety and convenience ; and that, if necessary,
a house should be provided in the neighbourhood, to receive
for a time those who could not be otherwise disposed of.
These recommendations were promptly attended to, and on
the 15th of January only twelve persons remained, all of
whom were on that day removed to a house in Vine-street,
in the immediate neighbourhood of the hospital.

The first inquiry then, was, in what way this erysipela-
tous inflammation had been kept in existence in the house
for so long a time, or to what peculiar circumstance was this
singular fact owing ?   The situation of the Massachusetts
General Hospital is remarkable for its salubrity and adaptation
to the wants of such an establishment ; and it will not, I am
confident, be thought hazarding too much, by those who
have been conversant with its internal arrangement, to say,
that in point of cleanliness it may challenge a comparison
with the best regulated hospitals in Europe or this country.
There was one circumstance however in which it differed

from other institutions of the kind ; I refer to the manner of warming and ventilating it. All the wards, with two or three exceptions, were warmed by furnaces placed in the cellar. The hot air, which was external air heated by the furnace, was admitted at the upper part of the ward, and at the bottom there was an outlet for the escape of the foul air. This was considered better than to admit the air from below, both for the purposes of warmth and ventilation, and it answered the first purpose perfectly at all times, and the other in great measure as long as fire was kept in the furnaces. But when this was extinguished, the patients, to prevent the wards from becoming cold, shut the ventilators, and there being no fire-places in the rooms, there was consequently little or no circulation of air during the night.

The following fact may be mentioned in corroboration of the opinion, that the disease was probably owing to a want of complete ventilation. The alms-house in Leverett-street was, till the erection of the hospital, the only public receptacle for the sick poor, as well as the paupers of the town, and though it was far from being clean, I cannot learn that any case of erysipelas occurred there from the time of its erection till its removal in 1825. For several years I was well acquainted with the state of that house, part of the time as a student of medicine, and a part of the time as the physician, and during the whole of that period there was not a single case of this disease. It is not improbable, that there may have been one or two solitary instances at other times,—it would be remarkable if it were otherwise; but that it never prevailed there to any extent, I am absolutely certain. The reason of this exemption I conceive to be the fact, that the rooms, in which the patients were kept, were spacious, well ventilated, and had large open fire-places.

In the house of industry at South Boston, on the other hand, which, besides having every advantage of situation, is far cleaner than the old alms-house, and is intended only for the reception of paupers, erysipelatous inflammation, of the same character precisely as that which appeared in the hospital, has already several times occurred. The rooms, ap-

propriated to the sick in this house, are small, have but one
window, communicate with an entry warmed by a furnace,
and a part of them are not provided with fire-places.

It seems to me to be no objection to this opinion, that se-
veral of the cases in the hospital occurred during the sum-
mer ; for the windows in the patients' rooms being all closed
at night, and there being of course no fire in the furnaces,
there was consequently but little change of air.   It is a fact
also, and certainly a striking one, that not a single case ap-
peared in any room in which there was a fire-place ; and it
is not less remarkable, that not a case has occurred in the
house since the patients have been re-admitted, though nearly
five months have elapsed since it was re-opened, a period
of exemption more than double in length of what has existed
since the occurrence of the first case,—and during this very
period the disease has been unusually prevalent in various
parts of the city.   This must be attributed chiefly, I think,
to the more complete ventilation of the wards ; for the hospi-
tal, though perfectly clean, is not more so than formerly,
and the number of patients is as great as it has frequently
been before.

As soon as the patients were removed from the hospital,
the following means were employed by the advice of the
medical attendants to purify it, and to prevent the recurrence
of the disease.   All the mattrasses were ripped open, the
tickings washed, the hair picked and baked, having been
first exposed five days and nights to the air, during which
period the thermometer was most of the time below zero,
all the windows in the house were kept open for the same
length of time.   After this, the wards were first fumigated
with sulphur, then with the gas of chlorine ; all of them were
white-washed, and part of them were painted ; the wood work
in those that were not painted was washed with lime water.
Fire-places were then made in all the wards, with two or
three exceptions only, and these were rooms of a very small
size.   Fortunately this could be done without much difficulty,
as flues were left in the walls originally from an apprehension,
that the furnaces might not warm the building sufficiently.

The bedsteads were left out doors, exposed to the wea-
ther which was intensely cold for several days, and then
carefully washed.   The house having been scoured through-
out was ready to receive patients, and they were accordingly
readmitted on the 3d of February, it having been closed
nearly three weeks.   As was remarked above, almost five
months have elapsed since their return, without the occur-
rence of a single case.   The furnaces are still used to warm
the building, and small fires are lighted in the fire-places suffi-
cient only to promote a free circulation of air.   The state of
the atmosphere is certainly more agreeable in the wards than
before the alteration ; it has lost all that closeness, which, at
times when the heat was great, was extremely unpleasant, if
not unsalutary.

Nothing occurred in the progress of this disease at this
time to warrant a belief, that it was propagated by contagion.
The second patient was not admitted into the hospital for
more than a month after the death of the first, and in no in-
stance were any of the nurses or attendants attacked with it,
nor did it seem possible in any case to trace it from one pa-
tient to another.   An atmosphere, capable of producing ery-
sipelas in those predisposed to it, seems to have been gene-
rated by the first patient ; and this was never entirely re-
moved, from the want of sufficient ventilation, till after all
the patients were discharged from the house.   I am not dis-
posed to deny, in opposition to the opinion of the late Dr
Wells of London, as given in his ' Observations on Erysipe-
las,' in the second volume of the Transactions of a Society
for the improvement of Medical and Chirurgical Knowledge,
that the disease ' may, sometimes at least, be communicated
from one person to another,' though I must confess that no-
thing has ever occurred under my own observation, that
would incline me to think with him.

It would not accord with the object of this paper to detail
minutely the medical *character* and *treatment* of the erysipe-
las, as it existed in the hospital at this time ; a few general
remarks on these points are all that I shall offer.

It was evidently a disease of debility, affecting those with

most severity, who were already exhausted by previous illness, or whose systems were broken down by intemperance. Not a death occurred of an individual, who was either not debilitated by sickness, or whose constitution was not impaired by former indulgence in the use of ardent spirits. It seemed to demand, in most of the cases certainly, the treatment first recommended, I believe, by Dr Fordyce, and since so successfully followed by Dr Wells and many other eminent physicians of Great Britain, I mean that of administering Peruvian bark in large and frequent doses, and keeping the affected parts bathed with diluted alcohol.

Evacuants were rarely required; in a few instances, emetics or mild cathartics followed immediately by the bark, were found useful. The bark was not given in such doses as Dr Fordyce speaks of, that is, one drachm of the powder every hour; it is rare, that the stomach will retain it in such quantities, and it is still more rare I believe that such a quantity is required. Dr Wells, a firm believer of the correctness of this practice, never gave it to such an amount, nor did he think it necessary. It is difficult, during the delirium which so commonly attends the disease, to induce patients to take it in this form, and the sulphate of quinine was found to be an excellent substitute. In recurring to the records, the largest quantity of powdered bark administered to any patient with erysipelas, I find to have been one ounce in twenty-four hours; a pint of brandy, however, was taken during the same period. Of the sulphate of quinine thirty-six grains were given in divided doses of six grains each, in the same length of time to another patient. Great use was made of wine, porter, brandy, the infusion of bark and the tincture of the sulphate of quinine as auxiliaries, and in some of the worst cases, these alone were employed, as the patients would reject every thing but liquids.

IX.   *An Account of the Fever which prevailed in Berlin,
Connecticut,* in 1823.   Communicated for this Journal by
Samuel B. Woodward, M.D.

THE fever which prevailed in Berlin, Connecticut, in the
summer of 1823, commenced as early as June, and in the
months of August, September, and October, spread exten-
sively over the town and neighbouring parishes.   In the
three societies of Berlin and the adjoining parish Newing-
ton, in the town of Wethersfield, about 500 cases of this
epidemic occurred, and forty-four deaths ; some of them so
suddenly, as to allow little or no time for medication.   It
attacked principally young people, or the middle aged ; chil-
dren and the aged more rarely.   In most cases the attack
was surprisingly sudden.

It usually attacked with pain in the limbs, headach, *verti-
go*, blindness, *extreme faintness at stomach*.   Nausea and
vomiting attended in some cases ; and in some, diarrhœa ; in
a few, dysentery.   Some of the most violent attacks were
without pain, with great torpor of the stomach, brain, and
the whole system ; the skin and stomach being insensible to
the influence of the most powerful excitants.

The patients very generally complained of insupportable
anguish or distress at stomach ; expressed by the terms,
vacancy, faintness, or *deathly sinking* and *coldness*.   This
was the most distressing of all the symptoms, and the patients
would urge that it be removed, as being altogether insup-
portable.

Chills rarely appeared at the commencement, yet the pa-
tients were generally cold for a long time ; and the skin over
the whole body, even over the stomach and heart, would
feel cold to the touch, like placing your hand on marble.
The extremities were very liable to be cold, if not kept
warm by artificial means, through the whole progress of the
disease.

The skin was usually dry and shrivelled, but sometimes
bedewed with a cold and clammy moisture.   The pulse was

uniformly soft, small, and extremely compressible; frequently as slow as thirty or forty in a minute in the most robust subjects, and, in some cases, as slow as twenty-five in a minute, with irregularity and intermission; sometimes the pulse was extremely rapid and feeble.

The respiration was slow, in a majority of cases; sometimes not exceeding four in a minute, commonly from eight to twelve. In many cases the chest seemed not to dilate in respiration, and you could hardly perceive that the patient breathed, except when a voluntary effort was made; in such cases, the patient would often sigh every minute, or every second minute, for a long time. This was often spoken of by the physicians as the respiration of sighs. In other cases, the respiration was more natural; in a few rapid and panting, like what follows violent exercise.

The speech was frequently inarticulate; and the patient complained of inability to speak, from a weakness or torpor of the lungs.

A distressing palpitation of the heart was often attendant upon these disturbances of the vital organs; as great, in many cases, as will be seen in fatal organic disease.

The tongue was almost uniformly pale, flabby, spreading wide on being put out, and indented on its edge by the teeth; sometimes it was shrivelled and furrowed; the surface of it was usually covered by a brown slime, sometimes black, and not unfrequently of a greenish hue; sometimes the centre appeared elevated, and the fur had the appearance of molasses. This was a bad tongue; but the worst appearance of the tongue was a perfect dryness of the fur, and indeed of the whole tongue and mouth, showing that the secretions were entirely suspended.

Slight aberration of mind attended many cases, and indeed preceded the attack, sometimes many hours; the patient loosing himself in conversation, and talking incoherently, or suddenly arousing, while speaking, from abstraction, with appearances of agitation. This, with a certain appearance of the countenance, often enabled the physician to predict an attack of the disease with great certainty.

Many cases were attended by violent delirium, often of the hysterical character. The most severe and dangerous cases had an early tendency to coma, and coma was sometimes the very first symptom, always dangerous, and often fatal in forty-eight hours.

The eyes were heavy and vacant, frequently red and watery; the patient complained of blindness, or obscurity of vision, often double vision; in some cases objects appeared large; in one case, every object was extremely small, a large man appearing not larger than a child two years old. In irritable cases, the pupils would be contracted to a point, in torpid ones dilated.

The whole countenance expressed great anxiety and distress. In severe cases there was great torpor of the bladder, many times requiring the catheter; in some cases the secretion of urine was suspended, and a table-spoonful would not be discharged or obtained by the catheter, for three or four days. In other cases a strangury attended.

Some cases had eruptions of the skin; efflorescence, rash, and vesicular eruptions were the most common. In one case, the body was covered with an eruption of vesicles, principally filled with bloody serum; on opening the vesicles, a hemorrhagy took place from them, and the whole body was covered with blood.

In some cases the stomach and bowels were extremely irritable; every substance would be thrown from the stomach; acidity was very common, and flatulency a very distressing symptom.

But a great torpor of the stomach, receiving the most powerful and acrid stimulants with impunity, was a more dangerous symptom. In some such cases, clear brandy was mistaken for water, and strong infusion of capsicum might be taken without complaint. Two or three ounces of strong tincture of lytta, and as many drachms of arsenical solution, might be taken without any unpleasant effect in extreme cases in twenty-four hours. There was the greatest liability to changes in this disease, of any that I have ever witnessed. In the course of a few hours, the most mild and favourable

cases would become the most alarming and dangerous ; every symptom would become changed, and an entire change of remedies become necessary.   When the attack was sudden, the patient would be liable to sink at the same hour of the day for many days, often during the whole continuance of the disease.   In the morning you might find a patient comfortable, conversing, and warm.   In a few hours, without any visible cause, you would find a profound coma, great coldness of the surface, slow respiration, slow pulse, and extreme, often fatal prostration of strength.   Such effects were very apt to occur from evacuations ; sometimes instead of coma, excessive irritability of the stomach, of the mind, and the whole nervous system, would supervene upon the most favourable appearances.   In some cases, on the contrary, the most favourable changes from the most hopeless condition would take place, and in a very short period all danger would be over.

This disease, like the spotted fever which prevailed some years since extensively in this section of country, differed from common typhus in this essential particular, especially the bad cases ; to wit : *No reaction took place till the third, fifth, seventh, or even the ninth day, and the danger of the disease consisted in a want of reaction.*

Whenever symptoms of reaction appeared, the physician's hopes were increased, and frequently these symptoms were the precursors, or even the commencement of a crisis.   This often happened on the third, fifth, or seventh day ; but if the crisis was not complete, the danger was not over ; and if it was, there existed the greatest liability to relapse from the slightest causes.

As the most dangerous stage of this disease was the *early and long continued cold stage*, if it may be so called, or the period without reaction ; so, obviously, the first indication of cure was to arouse the dormant energies of the system, and support the powers of life, till symptoms of reaction took place, and then by appropriate remedies induce new actions and counter-irritation, and support the system if exhausted by disease.

The agents used most successfully to fulfil the first indication were external heat, external irritants, and internal stimulants.   The external irritants most commonly employed were epispastics, sinapisms, oil of turpentine, applied to the surface by cloths wet and covered so as to prevent sudden evaporation; friction with tincture of capsicum, with dry flannels; and the application of capsicum dry on cotton batting.

The internal stimulants were ardent spirits, wine, opium, ammonia, essential oils, sulphate of quinine, capsicum, serpentaria, warm aromatic teas, and, when great torpor and coma were present, tincture of lytta and the arsenical solution.   Opium was the sheet anchor in most of the cases, and required to be used freely.   In irritable cases, full doses of opium at proper intervals succeeded best.   In torpid cases, small doses at short intervals did better than large ones at longer intervals.   Where the stomach rejected opium and other medicine, laudanum injections, repeated according to the urgency of the symptoms, would often allay the irritability of the stomach, and quiet the distress.

Brandy was the form in which ardent spirits was best borne, and was often the only article that would be retained upon the stomach, except opium, in extreme cases.   In milder ones wine, sling, porter, and even aromatic teas, were sufficient to excite the actions of the system.   Ammonia and capsicum were very useful to remove the deathly coldness and sinking at the stomach, essence of peppermint, cinnamon, cloves, and other aromatics, were also useful to fulfil the same intention.

The lytta was used when there was coma, torpor of the bladder, or deficient secretion of urine; in irritable cases it was inadmissible, especially when there was great irritability of the stomach.

The arsenical solution, holding a middle rank between the more diffusible and permanent stimulants, acting powerfully on the extreme vessels and extremities of the venous system, as well as upon the nervous system, was considered as clearly indicated in this disease.   It would frequently make an impression upon the stomach and brain when other re-

medies failed ; and on this account, probably, had a greater effect to prevent and remove coma, and collapse, or subsidentia, than any other article. It was given very freely in some cases with most decided benefit ; in others, it failed in consequence of irritating the stomach and producing vomiting.

Bark was better fitted for convalescence, than for the early periods of disease. If reaction took place without proving a solution of disease, or if the symptoms were protracted to a considerable length ; if the skin was warm and moist and the symptoms at all periodical, bark was a valuable remedy, and the sulphate of quinine and cinchona the best form in which to administer it. The mistaken idea that this disease is a putrid fever, has induced many to suppose that bark would be an indispensable remedy. But the disease has no tendency to putrefaction ; it is strictly a nervous fever, and in cases where it terminated fatally, no putridity was apparent. On the contrary, the bodies would keep after death much longer than from almost any other disease.

The great variation in the severity of the cases made a corresponding variation in the treatment. In some cases, warm aromatic teas, with external warmth and moderate opiates, answered all the intentions, and the cases recovered as those of the slightest febrile disease which we are called to visit. In others, a malignancy and fatal tendency rarely witnessed in the plague or yellow fever, called for the most prompt and liberal use of remedies, and the patients would bear and be benefited by, and recover under the most astonishing quantities of opium and alcohol and other excitants, and nothing less would save them from sinking directly into the arms of death.

On the 3d, 5th, or 7th day, if the system had been well sustained, some symptoms of reaction frequently took place. If the stomach had been torpid, it now became more susceptible ; if irritable, it would retain food and medicine ; the warmth was restored or increased, which, till reaction took place, was almost uniformly below the healthy temperature. The pulse had more firmness, and was more natural ;

the intestines had some rumbling and slight pain, and, very frequently, a spontaneous movement took place. The patient did not feel the necessity of constant support as before, and had more strength and less vacancy at stomach. The tongue assumed a better aspect, the fur diminished, or changed its appearance; the respiration became regular, and the action of the heart natural, and, if no cause of relapse took place, the patient had a speedy recovery. If the bowels did not move spontaneously when reaction took place, small doses of calomel were given, followed by gentle laxatives, as tinct. of rhei or enemata, always guarding against too free evacuations; for many patients, convalescing from this disease, would be obliged to go to bed for a day, with faintness and sinking at the stomach, after a movement of the bowels, even if unsolicited and altogether natural. Till a crisis was formed, there was always a tendency, greater or less, to the return of bad symptoms, and even, afterwards, relapses were more frequent, and took place from slighter causes than in common typhus or other fevers. In a great majority of cases, however, the patients were recovering by the fifth or seventh day. All cases did not terminate so favourably, nor exhibit those changes upon which we could rely with hopes of speedy amendment. Some sunk down in the very onset, with coldness, coma, or convulsions, without symptoms of reaction. In such cases, the stomach would often receive the most powerful and acrid excitants, without producing any sensible effect.

In some cases, there was such an uncontrollable irritability of stomach, with such prostration of the strength, that sufficient medicine could not be retained to excite the languid powers, and they sunk by syncope or convulsions, or a final fatal coma. In others, the brain became affected; delirium, violent and outrageous, or vigilance and the highest degree of irritability of the whole nervous system, followed by an apparent organic lesion, or a fatal exhaustion, prostrated the powers of life.

At times, the want of regular nursing, or the occurrence of great alarm to which most of the cases were ex-

tremely liable, would protract the milder ones or render them more severe, and, in bad cases, prevent those early critical changes upon which the prospect of a favourable termination greatly depended ; for the powers of the system could not be long sustained when the tendency to fatality was so great, unless reaction did take place.

In mild cases, a careful and moderate use of calomel was proper at the first, so much as to move the bowels gently. In bad cases, no anxiety was had on the subject of costiveness, till the symptoms of reaction had taken place, some uneasiness in the bowels felt, or rumbling of the intestines, showed that some action was restored in them. Then moderate doses of calomel, followed by gentle laxatives or enemata were used till moderate evacuations were procured. Spontaneous evacuations often took place at this time, which were perfectly healthy in their appearance.

On the subject of evacuations from the bowels, this rule was generally observed, not to procure them till we were satisfied of their safety, and then proceed with caution, taking due care to support the system under their operation, and checking them promptly when they sunk the patient.

The following case, briefly related, will show the necessity of caution on the subject of evacuations. Mrs K., aged forty, had buried a child in the afternoon, which had fallen a victim to the disease; on returning from the funeral, she was taken with numbness of the limbs and blindness, followed by extreme headach and vertigo. She soon became very cold, sunk into a state of insensibility, and lost the pulse in both wrists ; the respiration was but a repetition of sighing. A respectable and experienced physician was immediately called in, and, seeing the danger, prescribed a liberal use of stimulants, internal and external. Eighteen hours after the writer saw the patient in consultation ; she had aroused from the coma, was warm, and moist, pulse 140 in a minute, soft, and extremely feeble; tongue pale, flabby, covered with a molasses-coloured fur, the centre elevated. The medicine was diminished, although continued with considerable free-

dom.   Soon, however, she sunk again into coma, and was considered in a dying state.   Powerful stimulants, both internal and external, were again made use of ; again she aroused, became warm and moist, was rational, and was considered better by her friends.   She had a discharge from the bowels spontaneously, on the morning of the third day, immediately sunk into a coma, so profound, as never to swallow or speak again, and died in a few hours.

To show the sudden transition from mild to bad symptoms, I relate briefly the following case :—Mrs K., aged twenty-six, was attacked with the mildest form of the complaint.   She had cool surface, loss of appetite, headach, slight vertigo, some pain in the limbs, and sinking and distress at the stomach ; her tongue was lightly coated with a brownish fur ; her pulse was weak but not frequent, and she was walking about the room when I was called to see her, on the second day of the symptoms.   She had taken a light purge of calomel which operated.   I directed her to foment her feet, take some warm aromatic tea, and confine herself to bed.   I lived five miles from the patient ; the neighbourhood was very sickly.   On the third day of her illness, as I was on my way to the sickly neighbourhood, I was informed that Mrs K. was in a dying state.   I hastened to the house, found her comatose, pale, ghastly, with a pulse hardly perceptible, as rapid as possible ; rejecting every thing from the stomach ; surface and extremities cold, tongue bloodless, covered with a molasses-coloured fur ; she was tossing from side to side ; when aroused from the stupor, regardless of all around her ; her eyes appeared bloodshot ; and it was with the utmost difficulty that she could swallow any fluid.   I directed her frequent doses of brandy, small doses of laudanum, frequently repeated, gave freely of ammonia, blistered her stomach and extremities, used sinapisms to her feet and friction to the surface.

On the fourth day she was better, on the fifth much improved, on the seventh quite free from disease.

Wethersfield, Con. May 24th, 1827.

[*Note.*——We offer our thanks to Dr Woodward for his interesting communication, and assure him, it will always give us pleasure to receive articles from him for this Journal. The disease which he describes has appeared in various parts of Connecticut, and we indulge the hope of receiving further communications on the same subject. It may have assumed different characters, or been variously modified by circumstances, and there may be different pathological views entertained concerning it, and different methods of treatment may have been employed; on all these points we respectfully ask information.

Dr Woodward's paper was written in 1823, at the time the disease described in it was noticed. In a letter now before us, he remarks:——' The disease prevails every season more or less in the vicinity. In 1824 and 25, it proved fatal to many. Dr Ward, the eldest, and most respectable physician in the town, fell a victim to it. * * * I spent eighteen days in Berlin during its prevalence, and saw from ten to twenty cases daily. I attended most of the cases in Newington, the society of this town in which it prevailed, where were forty cases, not one of which proved fatal. I have visited hundreds since this article was written, alone and in consultation.']——Ed.

X.   *Cases of Erysipelas.*   Communicated for this Journal
by Richard Hazeltine, M.D.

Since the publication of the last number of the New-England Medical Review and Journal, a case of Erysipelas Infantum or ' cellular inflammation' has occurred in my practice. The circumstances of the case were as follow. The child was a male infant of about eight weeks old, and had been perfectly well till Friday evening, April the 27th. It manifested illness by almost incessant crying. My attention was called to the child on the morning of April 29th. I found a high degree of preternatural heat, with quickened pulse, &c., and at once suspected local inflammation somewhere. I directed the mother to make an examination, by undressing the child;

when it was discovered, that the whole left hip as far back as the spine, was deeply suffused with inflammatory redness; and that the inflammation extended down the back part of the thigh of the same side; and that the integuments and fleshy part of the thigh and nates of that side, were much swollen, and remarkably hard. I suspected phlegmon, and directed to the use of such applications as were adapted to that form of disease; but at the end of twenty-four hours, it became sufficiently evident, by the *extension* of the inflammation and slight tumefaction of the integuments *generally*, that the affection was unquestionably erysipelatous; and I was induced to direct the use of different external applications. In the course of another period of twenty-four hours, the inflammation extended to the perineum, scrotum and penis; and vesications had formed on the surface where the inflammation had first appeared. By Wednesday evening, the affection both local and general, had become so extensive and severe, that I gave very little encouragement to expect a recovery. Any movement of the child appeared to give it extreme distress. Being necessarily absent, I did not see the child from Wednesday evening till the succeeding Friday P.M. By this time the cuticle had desquamated in large patches from the surface first inflamed; and the colour of the newly formed cuticle appeared more healthy; but the inflammation had seized the whole of the lower extremities except the feet; and the parts were much swollen, shining, red and contracted. By this time some patches of inflammation had appeared on the surface of the body anteriorly, even as high as the chest; and the child, from hurried respiration, declining to nurse, cold extremities, and coma, appeared evidently to be failing. It died in the evening of the next day, Saturday, having been ill eight days. There was not the least appearance of gangrene in this case, at any period of it. The medical treatment consisted in the employment of calomel, at first as a cathartic, and afterwards as an alterative, with the alternate exhibition of vin. ant. and occasional doses of elix. paregoric, till Friday P.M., when an infusion of the

cinchona was directed, and continued as long as the child took any thing ; the latter, however, was got down only in small quantity.   The local applications were, at first, emollient cataplasms and fomentations, with a view to suppuration ; but when the idea of phlegmon was renounced, those means were abandoned, and recourse was had to embrocations of camphorated spirit, ardent spirit and water, &c.

Leave was obtained to make a post-obit examination ; and the business was attended to, Sabbath, A.M.   The whole of the lower extremities appeared much swollen and very firm. Considerable force was required, even with a very sharp knife, to divide the integuments and adipose substance down to the muscles.   The adipose substance was greatly thickened, and exhibited a singularly 'granular' appearance, resembling, probably, what has been compared to 'the disposition of the seeds in a pomegranate ;' and the division of it gave occasion to a copious exudation of serum.   Upon laying open the abdominal cavity, we were surprised to see a profusion of genuine pus pour out over the edges of the incision, made as it was in the usual manner ; and to find that the whole of the internal surface of the peritoneum, even where it constituted the lower surface of the diaphragm, was plentifully covered with the same.   Pus was also copiously found among the convolutions of the intestines : indeed had I known nothing of the preceding circumstances of this case and seen nothing of the *cadaver* but the abdominal cavity after it had been laid open, I should unhesitatingly have pronounced the disease to have been genuine peritonitis.

Erysipelas Infantum is a disease of which very few cases have occurred within my knowledge : indeed I do not now distinctly recollect that I ever saw more than one case before the present ; and that occurred in my preceptor's practice when I was a medical student, perhaps six-and-thirty years ago.   I remember but few of the circumstances of that case, and need not state any thing further concerning it, only that it terminated fatally.

The diversity of treatment recommended in this disease by different writers, is rather more likely to confound the

inexperienced physician, than to afford him any assistance. Were another case of the disease to come under my care, circumstanced like the one above detailed, I should treat it by a liberal use of cathartics, particularly by calomel and the neutral salts. I should place more dependence on evacuations made in that way, than on any mode of treatment that I have found recommended. Why should it not be treated as a synocha, or as genuine peritonitis, unless there are present circumstances indicating a tendency to gangrene? and might not this termination be prevented by a seasonable and diligent course of antiphlogistic measures?

I can easily conceive that the plan of treatment which Mr Copeland Hutchinson has the credit of first suggesting, but for which it seems Burserius has a prior claim, viz. by incisions, is a most efficacious one; inasmuch as it not only allows of a free discharge of morbid effused or secreted fluid, but converts dangerous or unhealthy inflammation, which the erysipelatous is usually considered to be, into a kind less unhealthy and devoid of danger. But as ' free longitudinal incisions' are so formidable a remedy, I should depend with great confidence in such cases on powerful evacuations by cathartics, and perhaps by blood-letting; on compression by means of the spiral bandage where practicable; and on the use of cold applications, particularly cold water.

Does erysipelas ever originate from contagion or infection? This question leads to a second part of this communication, in which I am more particularly interested than in all that has gone before.

Precisely on the *fifth* day after the preceding examination, in the A.M. of Friday the eleventh of May, I was seized with some rigidity and painful mobility of the muscles of my neck, which were followed in a little time by a violent rigor. The rigor was succeeded, as was expected, by a severe hot fit, with a very rapid pulse, and all the usual phenomena of an attack of synocha. In twenty-four hours my face began to swell, and assumed, at length, all the circumstances of a most severe case of erysipelas of the whole head. The case

was treated with a full dose of tart. ant. which produced powerful evacuations upwards and downwards. These operations were followed by a solution of the same medicine in water, taken in nauseating doses every four hours. Cathartics of calomel, sulph. soda, senna, manna, and tamarinds, were taken; and some other medicinal agents of less importance. The local applications were much less definite and specific, and need not be named. No essential relief was derived from all that was done; although the course was steadily pursued for four or five days. On Tuesday evening the fifteenth of May, and the fifth day of the disease, the fever was so high, and the distress so great, that I had a vein in my arm opened, and about twelve ounces of blood taken. This afforded some sensible relief; but not so much but that it was thought expedient the succeeding morning to take about as much more. The first portion of blood was cupped; and both portions were covered with the inflammatory crust. After this loss of blood, the disease rapidly declined; attended with a complete desquamation of the cuticle of the whole head, and several very sore and troublesome *phlyzacia* on the face. I entertain no doubt that my own sickness was fairly to be attributed to my attention to, but particularly to the post-obit examination of, the infant, as above related. My health had been poor for some time preceding; and I might justly consider my system as strongly predisposed to an attack of general disease in some form, upon the application of some exciting cause. The contagion or infection of erysipelas in the infant, proved an exciting cause, and produced a very severe attack of the disease in myself. I conceive that such was my predisposition to disease, that the powerful application of cold might have produced pneumonia, rheumatism, or some other highly inflammatory disease; or great exposure to the effluvia of dysenteric dejections might have occasioned dysentery; and the same may, with much probability of truth, be said of a powerful exposure to the effluvia of a malignant form of typhus.

Upon the whole, I am decidedly of the opinion, that facts

are not wanting to 'put it beyond doubt, that erysipelas is, sometimes at least, a contagious disease.'*

I trust it will not be deemed impertinent for me to add, that in the examination of the infant as above related, I was assisted by E. A. Lummus, M.D., of this town, who principally, but not exclusively, used the knife on the occasion; and that I was chiefly employed in the use of the sponge, in taking up the pus, serum, &c., with which my hands were wet a considerable part of the time.

Lynn, June 9, 1827.

Section II.—Selections, with Remarks.

IX.   *On the Treatment of Anchylosis, by the Formation of Artificial Joints.* By J. Rhea Barton, M.D., one of the Surgeons of the Pennsylvania Hospital. [*From the North American Medical and Surgical Journal for April,* 1827.]

We regret we have not room enough to print the following very interesting case entire. We are obliged to leave out much that it would have given us pleasure to have inserted. We have published the facts in the case as they first exhibited themselves to the able operator,—the operation itself,—and some notice of the circumstances which are recorded of the progress to recovery. Our concluding extract is an important one. It contains in few words the limits of the operation,—the cases to which in Dr Barton's opinion the operation may be extended; and the circumstances which are especially to be regarded before performing it.—Ed.

'John Coyle, native of Philadelphia, twenty-one years of age, sailor on board the schooner Topaz, Captain Schyler, states, that

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* See a communication entitled 'Observations on Erysipelas, by William Charles Wells, M.D.,' &c., in the second volume of 'Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge.' London, 1800.

on the 17th day of March, 1825, he fell from the hatchway into the ship's hold, upon the end of a barrel, a distance of about six or seven feet; that the force of the fall was sustained on the outside of his right hip; violent pain was the immediate consequence, and much tumefaction ensued; that after the injury, he arose with difficulty, and attempted to walk; thinks he made one or two steps, but was compelled to retire to his hammock, where he laid contracted for the space of about eighteen days; was then taken into Porto Cavello, and conveyed to the hospital. When lodged upon his bed, he placed himself on his side, with the injured limb uppermost, drawing the thigh to a right angle with the axis of the pelvis, and the knee resting on the sound side. In this posture he continued, without any material alteration, for the space of about five months; in the meantime, enduring all the suffering attendant upon a high degree of inflammation of one of the largest joints in the human body, and unalleviated by the support of splints, or a judicious antiphlogistic course of treatment. As might naturally be expected, a rigid and deformed limb was the result of such disease, combated only by the administration of some simple liniment.'

*   *   *   *   *   *

' In October, 1825, Coyle returned to Philadelphia, having been sent home by our Consul.

' Early on his arrival, he exhibited himself to me. He was then supported by crutches, having the thigh drawn up nearly to a right angle with the axis of the pelvis, and the knee turned inward, and projecting over the sound thigh; so that the outside of the foot presented forward. There was considerable enlargement round the hip, which so much obscured the case, even at this date, as to prevent me from forming any positive opinion as to the real nature of the original injury. From the fixed and immovable condition of the limb, it was impossible to ascertain whether, in a straight position, there would be shortening, and, if any, to what extent. The general feature of the limb bore *somewhat* the resemblance of that resulting from a dislocation into the ischiatic notch; yet the position in which the great trochanter stood, in relation to the superior anterior spinous process, discouraged such a belief. All things considered, I was rather inclined to the opinion, that there had been neither fracture nor luxation; but that the violence of the fall had produced an extensive contusion of the

round ligament and joint, and that disorganization had followed the consequent inflammation. On this point, whatever might have been the nature of the accident, I thought I might feel assured, that *now* all articular movement was gone, and that true anchylosis had taken place.'

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' Finding Coyle still in the hospital, a year after his admission, much reflection on his case led me to propose to my colleagues, the following operation, viz. To make an incision through the integuments, of six or seven inches in length, one half extending above, and the other below, the great trochanter; this to be met by a transverse section, of four or five inches in extent; the two forming a crucial incision, the four angles of which were to meet opposite to the most prominent point of the great trochanter; then to detach the fascia, and, by turning the blade of the scalpel sideways, to separate anteriorly all muscular structure from the bone, without unnecessarily dividing their fibres. Having done this, in like manner, behind and between the two trochanters, to divide the bone transversely through the great trochanter, and part of the neck of the bone, by means of a strong and narrow saw, made for the purpose; this being accomplished, to extend the limb, and dress the wound. After the irritation from the operation shall have passed away, to prevent, if possible, by gentle and daily movement of the limb, &c. the formation of bony union; and to establish an attachment by ligament only, as in cases of ununited fractures, or artificial joints, as they are called.'

*   *   *   *   *   *

' Accordingly, on the 22d day of November, 1826, assisted by Drs Hewson and Parrish, I proceeded to the operation publicly in the Pennsylvania Hospital.'

*   *   *   *   *   *

' The integuments and fascia being divided and raised, the muscles in contact with the bone, around part of the great trochanter, were carefully detached, and a passage thereby made, just large enough to admit of the insinuation of my fore-fingers, before and behind the bone; the tips of which now met around the lower part of the cervix of the femur, a little above its root. The saw was readily applied, and, without any difficulty, a separation of the bone was effected. The thigh was now released, and I immediately

turned out the knee, extended the leg, and placed the limbs side
by side; by a comparison of which, in reference to length, the un-
sound member betrayed a shortening of about half an inch. This
might have been caused partly by a distortion of the pelvis. Not
one blood-vessel required to be secured. Union by the first inten-
tion was not attempted; the lips of the wound were only support-
ed by adhesive plaster and slight dressings. The patient was put
to bed, and DESAULT's splints were applied, to support the limb.

' The operation, though severe, was not of long duration, it be-
ing accomplished in the space of about seven minutes.

' In the evening, the patient suffered great pain, and was much
prostrated; his pulse feeble, stomach irritable, with great restless-
ness. Opium, grs. ii. were given.'

    *   *   *   *   *   *

' Dec. 1st. Whole surface of wound covered with healthy granu-
lations.'

    *   *   *   *   *   *

' Jan. 20th, 1827. During the past month, no circumstance has
occurred, as to the patient's general health, or the appearance of
the wound, which deserved particular notice, except that the sore
regularly diminished in size, and his strength increased. It must
now be particularly noticed, that, in addition to the treatment al-
ready mentioned, after the twentieth day from the operation, the
limb was cautiously moved in such directions as resembled the na-
tural movement of the sound hip-joint; but in doing this, I was
careful never to use such violence, to continue it so long at a time,
or to repeat it so often, as to occasion any permanent irritation. A
sufficient time was always allowed, for the patient to recover from
the soreness of the last motions, before the limb was again disturb-
ed. At first, it was necessary to allow an interval of several days
between the movements, in order to obtain a subsidence of the
soreness.

' In the course of a short time, however, the part became more
insensible to pain from this disturbance, and the limb was more
frequently moved. During the last three weeks, the patient was
requested, at my daily visits to him, to exert his muscles, in slightly
flexing, extending, and rotating his thigh. This he accomplished
without difficulty, and, after a little practice, without pain. As an
auxiliary step, he was occasionally propped upright in bed, so that
his pelvis might be at an angle with his thigh.

' 21st. It is just sixty days since the operation was performed. The wound having now entirely healed, and all appearances of inflammation gone, Coyle, with careful assistance, left his bed, and, aided by crutches, stood erect, both feet reaching the floor; he thinks he bore ten or twelve pounds weight on the weakened limb for a few minutes; made an attempt to advance the leg, and did so exclusively by muscular exertion; then rested on the sound side, and rotated the knee, and says, without pain. He was then placed in a wheeled-chair, and moved to the fire, where he sat, with both feet down, for about an hour; then retired to bed.'

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' 31st. Patient dressed himself, and walked, with the assistance of his crutches, to the managers' apartment, a distance of about one hundred and fifty feet. Dr HEWSON and myself now examined him particularly, to ascertain the muscular control he possessed over this newly formed joint. We found him able to perform flexion and extension, abduction and adduction, rotation inward and outward, and able to cross the opposite foot; he had, then, in fact, regained every movement which the limb originally possessed.

' Feb. 8th. Patient's strength, local and general, has been daily recruiting. To-day, he walked about ninety or one hundred yards; and with aid, got into a gig, and rode to an extreme part of the city, a distance of about five miles; felt no pain, except at one or two unavoidable jolts; returned, and felt no fatigue.'

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' March 1st. Since the last report, my patient has been rapidly gaining strength. His appetite is good. The ulcer, occasioned by the erysipelas, which at no time was more than a mere abrasion of the surface, and not in the slightest manner affecting the joint, may be considered as well. He sleeps soundly, either on his back or side. He arises in the morning, and retires not until night; in the meantime, amusing himself by exercise in walking, which he now begins to accomplish by the aid merely of a cane; time only seems to be required to enable him to walk without even this assistance. The following is the degree to which he can perform the movements of his limb with perfect ease: By measurement from a straight line, he can advance the foot twenty-four inches; in stepping backward, twenty-six inches; in abduction, twenty inches; in rotation inward, six inches, and outward, six inches.

' March 22d. My patient continues to improve. A day or two since, he convinced me of his increasing strength, by walking, *without even the aid of a cane,* a distance of about fifteen yards; and repeated it on another occasion. The hip bears not the least appearance of disease, and is of a healthy temperature. Nothing is observable, but a sound and well-formed cicatrix.'

*   *   *   *   *   *

' I hope I will not be understood as entertaining the belief, that this treatment will be applicable to, and judicious in, every case of anchylosis. I believe the operation would be justifiable *only* under the following circumstances, viz. Where the patient's general health is good, and his constitution is sufficiently strong; where the rigidity is not confined to the soft parts, but is actually occasioned by a consolidation of the joint; where all the muscles and tendons, that were essential to the ordinary movements of the former joint, are sound, and not incorporated by firm adhesions with the adjacent structure; where the disease, causing the deformity, has entirely subsided; where the operation can be performed through the original point of motion, or so near to it, that the use of most of the tendons and muscles will not be lost; and, finally, where the deformity, or inconvenience, is such, as will induce the patient to endure the pain, and incur the risks of an operation.'

X. *Directions for using the Lunar Caustic.* By John Higginbottom, Esq.

' I am desirous of giving a distinct account of the plan which I have learnt from experience to be the best, in applying the lunar caustic in those diseases in which I have hitherto employed it; for the *proper mode* of application of the caustic is quite essential to secure its good effects, and to avoid some rather disagreeable consequences of a careless mode of using it.

' In the first place, I always prefer to use the lunar caustic in its solid form; for it is in that state much more manageable than in any other. It is necessary to moisten the surface to which it is applied slightly with pure water, except in the case of ulcers from which lymph or pus exudes, and then this is only necessary in regard to the surrounding skin.

' In the second place, it is essential to know the precise effects

of the lunar caustic, in the different degrees of its application.   If the caustic be passed once slightly over the moistened skin of any part, except the hand (upon which the cuticle is thicker than elsewhere), it induces an eschar simply; if it be passed over the surface twice or thrice, to the eschar will be added some vesication; if more frequently still, there will be vesication only.   In the first case, there will be no pain; in the second and last, there will be soreness proportionate to the degree of vesication.

' It is essential to the success of this plan of treatment by the lunar caustic, that these observations be kept constantly in view.

' I shall now first describe the mode of application of the caustic in the treatment—

' 1. *Of Recent Bruised Wounds of the Shin, &c.*—In recent bruised wounds of the shin, the caustic should be applied upon the wound, taking care to leave no spot untouched, and upon the surrounding skin, to the breadth of one-third of an inch, in such a manner as to induce an eschar without vesications.   Any moisture which may remain upon the wound is then to be removed, by gently applying a little linen or lint, and the skin surrounding that to which the caustic was applied is to be moistened, and covered with goldbeater's skin, so that the whole may be protected from accident; the parts are then to be kept cool, free from covering, and exposed to the air.

' This is usually all the treatment which is required in this kind of injury.   I have generally found that an adherent eschar is formed, and that no further application or attention is required, except in old people, in whom the skin is sometimes irritable from various causes : in this case a little fluid will form upon the edges of the eschar, and will require to be evacuated by a small puncture, as in the treatment of ulcers about to be described ; the goldbeater's skin being removed for this purpose, and then re-applied.

' If the eschar be removed by accident, at any time, the application of the caustic must be repeated as before.   If due care be taken to avoid this kind of accident, I have not, in general, found it necessary to enjoin rest.

' 2. *Of Small Ulcers.*—I have stated, in my Essay on the Application of the Lunar Caustic, what were the cases in which I supposed it was proper to use this remedy.   I have, since the date of

that publication, improved much upon the mode of its application, and discovered many new instances of its utility.

' The treatment of ulcers by the caustic certainly requires more care and attention than some other cases ; yet I have seldom found it necessary to attend daily to them for more than nine or ten days. It is of the greatest importance that the application of the caustic should be made with the utmost care ; I shall, therefore, be very explicit in giving my directions for this purpose.

' The surrounding skin is first to be moistened, and the caustic applied lightly, so as not to induce vesication, to the extent of half an inch round the ulcer. It is then to be applied over the ulcerated surface ; and it may be applied more freely upon this surface than in the case of a recent wound. The whole is then to be protected by goldbeater's skin, in the manner already described.

' The application of the caustic round the ulcer subdues the inflammation of this part, and induces a firmer, and more continuous, and adherent eschar. If any detached vesication be induced, it is to be simply exposed to the air ; but if it communicate with the surface of the ulcer, the fluid is to be carefully evacuated. A light dress, as wide trowsers, if the seat of the ulcer be upon the leg, is to be worn.

' On the succeeding day, the goldbeater's skin is to be removed, by being moistened with a little water : a small smooth incision is to be made, by means of a penknife, through the eschar in its central part, and then a little pressure is to be made, so as to evacuate any fluid which may have been effused ; this fluid is to be carefully removed by a little soft linen ; the breach in the eschar is to be repaired by re-applying the caustic ; and the whole is to be protected, as before, by the goldbeater's skin.

' On the first and second days, there is usually little fluid secreted ; for five or six succeeding days, rather more is formed. The same means must be employed for evacuating the fluid every day, until the eschar finally becomes completely adherent. This will be ascertained by the appearance of indentations in the surface of the eschar, and usually occurs about the tenth day. It is remarkable that in cases in which an eschar has been formed over a slough, it has required double the number of days to become adherent.

' During the unadherent state of the eschar, it is proper to ad-

minister an efficient purgative medicine every second or third day, and to enjoin rest. Afterwards, it is necessary carefully to remove the portions of the eschar as they separate at the edges, by means of a sharp pair of scissors, and to take great care to preserve it in its situation by the goldbeater's skin, and from being detached by accident.

‘ 3. *Of Punctured Wounds and Bites.*—In *recent* punctured wounds, the orifice of the wound must be first examined : if there be any loose portion of skin closing the orifice of the wound, it is to be removed by a pair of sharp-pointed scissors, or by a lancet ; the puncture and the surrounding skin are then to be moistened with a little water; the caustic is to be applied to the former until some pain be experienced, and over the latter lightly, so as not to induce vesication. The caustic is then to be applied to the skin, for an inch round the puncture, and to a greater extent if the swelling exceeds this space.   The part is then to be exposed to the air.

‘ These cases are generally adherent from the first application of the caustic, but I have sometimes found the eschar to separate from the wound before it has healed, owing to its conical form : it is then only necessary to repeat the application of the caustic slightly, to complete the cure.

‘ At a later period of punctured wounds, inflammation is usually present, the punctured orifice is nearly closed by the swelling, and a little pus has generally formed within.   A slight pressure is to be applied to evacuate this fluid ; the caustic is then to be applied within the puncture, and upon and a little beyond the surrounding inflamed skin, and the parts are to be exposed to dry. In this manner an adherent eschar is formed, and the inflammation subsides. If there be any vesication, it may be simply left to nature ; the fluid is soon absorbed, or evaporates.

‘ If there be reason to suppose that an abscess has formed deeply, it must be opened freely by the lancet, and the caustic is then to be applied within the cavity ; a poultice of bread and water, and cold water as a lotion, are then to be applied over the whole. The application of the caustic may be repeated every second or third day, if the swelling or inflammation require it ; and the cold poultice may be renewed every eight hours.

‘ I have several times applied the caustic over an inflamed sur-

face in cases in which I was not aware that suppuration had taken place. Even in these instances, an immediate check was given to the surrounding inflammation, and relief to the pain ; but two or three days afterwards, there was an increase of swelling, attended by some pain, which is not usual, except when there is matter or some extraneous body underneath. In these cases I made a free incision with the lancet, and applied the caustic and cold poultice.

' 4. *Of External Inflammation.*—I have had many opportunities of trying the efficacy of the lunar caustic in the treatment of external inflammation, and have published some examples of this mode of cure in this Journal for May and June 1826.

' In this case it is best first to wash the part with soap and water, to remove any oily substance from the skin, and to wipe it dry ; then to moisten the inflamed and surrounding skin, and to apply a long stick of caustic flat upon the moistened surfaces, taking care that not only every part of the inflamed skin be touched, but the surrounding healthy skin, to the extent of an inch, or more. The caustic must be passed over the surface twice or thrice only. The part is then to be exposed to the air to dry, and to be kept cool.

' In twenty-four hours, if the caustic has been properly applied, it will be observed that the inflammation has greatly subsided, and its progress been checked ; but if there be one spot left untouched, the patient complains of it. Every such spot must be touched with the caustic. At this period there is usually a little vesication, which, however, only does good, and never increases the inflammation, or induces irritation.

' On the third day, there is usually more vesication, and less swelling, and the patient complains of a little pain, as of that of a blister ; but, on pressure, the part has a puffy feeling, and is quite free from inflammation.

' On the fourth day, the vesications are disappearing. It is best to leave them undisturbed, for the dried exudation defends the subjacent cutis.

' On the fifth day, the vesicated crusts separate, leaving the subjacent parts free from soreness or inflammation. It is sometimes several days before the whole of these crusts peel off; but I believe it is best to leave them undisturbed.

' In *erysipelas from wounds or ulcers*, the wound or ulcer, and the inflamed surface, are to be treated by combining these modes of using the caustic.

' In *inflammation of the absorbents*, the caustic is to be applied as in external inflammation, passing it along the course of the inflamed absorbents, and beyond the inflamed surface in every direction.

' 5. *Of Constitutional Erysipelas.*—In this affection, bleeding, emetics, and purgative medicines, are to be premised, and then the lunar caustic is to be applied in the following manner :—The caustic is to be applied over the whole inflamed surface, and beyond it, upon the surrounding skin, to a far greater extent than in phlegmon,—perhaps to the extent of two inches or more round the inflamed border of the erysipelas. Any fresh accession of erysipelas must be immediately treated in the same manner. By means of the caustic, I believe it will often be found that we have a complete control over this disease. If the erysipelas be attended by vesication, the vesicles should be broken, and the part touched with the caustic ; but if vesications arise from the use of the caustic, they may be allowed to remain undisturbed. When the erysipelas has affected the head, the scalp should be shaved, that there may be no impediment to the due application of the remedy.

' 6. *Of Phagedenic Ulcers.*—In phagedenic ulcers, the caustic is to be lightly applied to the whole ulcer, but particularly to its edges and over the surrounding skin. If the ulcer be situated on the glans penis, a little lint is to be left upon it ; if on any other part, the cold poultice and lotion are to be applied.

' 7. *Of the Pain from applying the Lunar Caustic.*—I have never found the pain induced by the application of the caustic any barrier to its use. Patients generally suffer infinitely more from the inflammation, wound, or ulcer, treated in the ordinary way. The caustic gives a little pain at the time, but this is soon over. The ordinary mode of treatment is both more troublesome and painful, and for a much longer period. From the application of the caustic, in some painful circumstances, the patient experiences early, if not immediate relief; and perhaps sleeps for the first time, after passing many restless nights.

' I have never observed the least bad consequences from the proper use of the caustic, though this, like all other remedies of

great efficacy, requires to be employed with a due attention to such rules as experience teaches us to be best adapted to secure the objects which we have in view.'—*London Medical and Physical Journal, for April* 1827.

XI.   *Formation of an Artificial Urethra, on account of a Malformation of the Genital Organs.   (From the Magazin fur die Gesamente Heilkunde ; in the Bulletin des Sciences Médicales for February* 1827.)

The subject of this case was an infant with malformed penis. The gland was merely a rudiment ; the prepuce was wanting ; the extremity of the gland, with a trace of an urethral orifice, was found at the inferior edge of the corona glandis : the penis was of its usual length, but there was no opening on its surface.   An incision made upon the cleft which indicated the orifice of the urethra, conducted to no result.   On the third day, the subpubic region was rather tense ; M. Rublach then made an incision into the canal of the urethra, under the gland, and penetrated with difficulty, in the direction of the canal, through three-fourths of its length. A few drops of blood only followed ; the abdomen swelled more, and the infant was restless : at night, a quantity of urine was suddenly expelled by the rectum, and the tension of the abdomen ceased.   The next day, M. Rublach proposed to make an artificial canal through the penis, and he obtained a silver flexible sound, the end of which was flattened, and had a cutting edge.   This sound pushed with difficulty in the direction of the neck of the bladder at length entered its cavity : the urine flowed immediately after ; the sound was left in for some time ; and the urine, ceasing to flow through the rectum, was discharged by the artificial passage which had been made by the operation.—*Lond. Med. Repos. and Review.*

XII.   *Extraordinary Case of Chronic Inflammation of the Omentum and the Cellular Tissue of the Abdomen, in a young Girl who was incapable of Conceiving, but was reputed Pregnant.   By G. Strambio.   (From the Annali di Medicina fisol, Pathol. in Bulletin des Sciences Médicales, February* 1827.)

Mademoiselle Taini was born at the full period, and to all appearances healthy and well formed.   At fourteen months old she

was weaned; she was then thin, pale, and with a large abdomen. The catamenia appeared at twelve years of age, returned regularly for twenty months, and were suppressed at this time for five months. In consequence of participating in the gaieties of the carnival, she began to complain of pain in the right side of the abdomen, the size of which rapidly increased, and produced a suspicion of pregnancy: the reproaches of her parents aggravated her sufferings; purgatives had been administered without any alleviation,—when M. Strambio was called in towards the latter end of March 1822. She was then eighteen years of age, and had kept her bed for several days. Her face was pale; pulse hard, and frequent; skin burning; vomiting caused by taking food; the abdomen very voluminous, and more prominent on the right than on the left side; and on attentive examination, several hard and indolent tumours were manifest; pain was only produced in the subjacent parts by strong pressure. The left breast had disappeared; the right had for some weeks before augmented in size, and was tuberculated like the abdomen. Affection of the glandular lymphatic system, and violent inflammation of the stomach and bowels. An antiphlogistic treatment was pursued. A tumour, the size of an egg, on the right side of the rectum, prevented the introduction of a syringe or of the finger. Hydrothorax and anasarca ensued; and finally death, on the 22d of April.

The body was examined the next day. A great quantity of serum was found in the cavities of the pleuræ and of the pericardium; the lungs were in their natural state, or perhaps rather more flaccid. Nothing remarkable was discovered in the peritoneum. The stomach and intestines were filled with gas, and greatly inflamed; the omentum, detached from the viscera to which it adhered, had degenerated into a substance furrowed on its surface, very white both externally and internally, divided by portions of thin membranes and striæ of a pale rose colour, inodorous; it was elastic, and did not retain the impression of the finger; it was neither fat nor sebaceous, but medullary in its appearance. It occupied all the lower part of the abdomen to the umbilical region. It was disposed in separate masses, connected by membranous bands or cellular tissue. The left kidney, the spleen, the abdominal aorta, the intestinum rectum, of which the calibre was almost

obliterated, the ovaria and the uterus, which, according to M. Pa-
letto, were in the virgin state, were imbedded in this substance. It
obstructed the vagina two inches above the external orifice, and
had completely obliterated the remainder of the canal. The me-
sentery, the liver, the kidneys, the spleen, and the bladder, were
without alteration; the spleen was pale, but not increased in size;
the right breast exhibited precisely the same appearance as the
omentum.—*Ib.*

XIII.   *Clinique de la Pitié.* (*Nouvelle Bibliothèque Médi-
cale, February* 1827.)

Two instances of cancerous affection of the stomach are report-
ed as having occurred in this hospital, without any very marked
symptom during life. One of them had many signs of gastric de-
rangement on his admission, as loss of appetite, bitter taste, and
constipation. The tongue was clean; there was urgent thirst, and
considerable emaciation. The heat was natural; the skin dry and
rugous; and the abdomen in some points painful. His digestion
was imperfect. Alvine evacuations were procured with difficulty,
but afforded some relief. The thirst, and a sense of weight in the
stomach, were constantly oppressive. His countenance was pallid.
Once during his illness vomiting occurred, but apparently gave him
ease. Emaciation was extreme; his pulse fluttered; and at length
death ensued. To the last moment he complained of a tormenting
thirst.

Upon examination of the body after death, an extensive cancer-
ous ulcer was found occupying the pylorus. The gall bladder was
filled with inspissated bile, of which not a drop could escape
through the biliary ducts. Small cancerous tubercles were spread
over the surface of the peritoneum. The intestinal tube exhibited
nothing particular.

The other patient had remarked a difficulty in his digestion for
many months, although his appetite continued good. Very soon,
a constant acute pain compelled him to bend forwards in walking.
He had not urgent thirst, but had occasional vomitings. The alvine
evacuations were rare. Together with these symptoms, the tongue
was brown and furred; but the point and edges were not red. The
countenance was pale; there was frequent vomiting of an acid mat-

ter, but no sensibility in the epigastrium upon pressure. Diarrhœa latterly ensued, and death.

On opening the body, a large cancerous ulcer was noticed, occupying the middle space of the gastric surface, and near to the pylorus.—*Ib.*

XIV. *On the Chemical Process performed in Respiration.* (*Dict. des Termes de Médecine, &c. par Begin, &c.*)

THE opinion sustained by Allen and Pepys, and by others, that the blood does not receive oxygen from the air, but that on the contrary the oxygen serves only to form carbonic acid which is respired, is combated by Professor Mayer, of Bonn. He has several times repeated an experiment by which he proves, that the walls of the pulmonary vessels are really permeable to oxygen; and that this gas combines itself with the blood. The experiment consists in killing an animal by strangulation, immediately opening the thorax and pericardium, dividing the aorta and the pulmonary artery, and injecting distilled water into the latter until all the blood of the lungs is drawn off, and the water returns quite clear through the portion of the aorta yet attached to the heart. This preparation being made, a green solution of *cameleon mineral,* which has been carefully kept from the air, is injected into the pulmonary artery : it returns by the aorta, yet retaining the same colour ; but if the aorta is tied, and a fresh portion of the same solution is injected, and then the pulmonary artery tied, and air blown into the lungs, and artificial respiration kept up for some minutes, the liquid injected into the pulmonary vessels will soon acquire a beautiful red colour : a proof that the oxygen of the air has acted on the cameleon mineral by penetrating the organic walls of the vessels which contained it.

(The *cameleon mineral* employed in the above experiment is a combination of the peroxide of manganese with potash or soda, effected by the absorption of a portion of oxygen : it is either a manganesiate of potash, or a compound of peroxide of manganese and potassium, according to that of the two oxides with which the excess of oxygen unites itself, which is not yet ascertained. Its name is derived from the changes of colour it undergoes when its solution is treated with acids or with alkalies.—*Ib.*

XV. *Œsophagus communicating with the Trachea. (Bull. des Sc. Méd., from the Observ. des Sc. Méd. of Marseilles.)*

A NEWLY-BORN infant rejected every kind of drink, and died in thirty-six hours. When the body was opened, and the stomach exposed, it was found impossible to inflate it by means of a tube introduced into the pharynx : the tube was then inserted into the trachea, and the air blown through it inflated both the stomach and the lungs. The œsophagus was then sought, but instead of it there was merely a *cul-de-sac* of some lines in length : a stilet was introduced into the trachea, and between the two ramifications it passed into a membranous elastic opening, about as large as a small quill, and went on towards the stomach.—*Ib.*

XVI. *Spontaneous Rupture of the Vena Cava Abdominalis. (Bull. des Sc. Méd., from the Journal de la Gironde.)*

MADAME FÉLICITÉ H., aged thirty, of a nervous temperament, had once or twice suffered from nervous agitation in consequence of some affliction. Two months after the first occurrence of these circumstances, and quite suddenly, she was seized with acute pain in the lower part of the abdomen : the pain was so severe that it was necessary to assist her to a couch. M. Larrey arrived half an hour afterwards. The pain had ceased, the pulse was natural, but the patient entertained the most mournful apprehensions. At seven in the evening, M. Larrey found her in bed without any pulse ; a cold and clammy perspiration was on the skin ; the intellectual faculties were undisturbed. The patient said she was dying. Ammoniated sinapisms were applied to the thighs, and an antispasmodic draught given. At nine o'clock the pulse was just perceived, the umbilical region was painful, but not tympanitic : a bath was ordered, which produced great relief ; the pulse recovered its strength and frequency ; but the patient having taken half a glass of wine and water in consequence of extreme thirst, such a state of faintness followed that she was supposed to be dead. A little afterwards the pulse was again felt, but was very feeble : sinapisms were again applied to the legs. From that time until half-past

three in the morning there was no change; icy coldness of the extremities; head free from pain; respiration natural; abdomen soft, and very little painful; violent thirst, with rejection of liquids; pulse very small; lips pale; eyelids closed: she twice uttered a sharp cry, and expired.

The body was examined fifteen hours after death. Between eight and ten pounds of black fluid blood were found in the abdomen; the vena cava and abdominal vessels were empty. There was an opening, of about half a line in extent, on the inner part of the vena cava an inch before it reached the liver.—*Ib.*

XVII.   *Cicatrisation of Nerves.*

M. Larrey exhibited, at a late meeting of the Section of Medicine of the French Academy, a preparation made from the dead body of an old soldier whose arm had been amputated; and pointed out the manner in which the nerves of the brachial plexus had become cicatrised. The extremities of these nervous cords were terminated by little tubercles, and united one to the other, so as to form actual curves (*de véritables anses*). This was the third example in which M. Larrey had observed this circumstance.—*Ib.*

XVIII.   *Treatment of Cerebral Inflammation.*

In a memoir, entitled *Theoretical and Practical Reflections* on this subject, read to the French Academy, M. Costa objects to the application of ice to the head, as there is no reason, he says, why a means which is not employed in other inflammations should be resorted to in this. He also repeats an objection often before urged, but not a valid one, founded on the belief, that if we empty the external vessels by the application of cold, the internal vessels become more gorged. The constant relief afforded by this measure is, we imagine, superior to all arguments of this kind. He equally objects to blisters. The rest of his treatment is very rational. He orders the head to be shaved, and a number of leeches to be applied along the course of the longitudinal sinus, he then puts on an emollient poultice. He prefers applying the leeches chiefly to the *sinciput*, for three reasons: 1. That inflammations of the brain and membranes are most common in the anterior part; 2. That by this means relief is given to the longitudinal sinus and cerebral veins;

3. Because there is a sympathy between the skin which covers the splanchnic cavities, and the contents of those cavities. M. Costa does not seem to have thought of this sympathy when he objected to the external application of ice.—*Ib.*

XIX.   *Treatment of Cancer by Compression. (Revue Médicale, January* 1827.)

Professor Recamier, of the Hôtel-Dieu, has made a considerable number of trials of this method of treating cancer: his first were not successful: in some other cases an amendment was taking place, but the patients became tired of the slowness of the process, and had the tumours removed. In several cases very remarkable relief was given; and in some a perfect cure was obtained.—*Ib.*

XX.   *Case of Obstinate Epistaxis. (Rev. Méd., from Hufeland's Journal.*

A young man, aged nineteen, was attacked with bleeding at the nose, which lasted two days, and was so abundant that he several times fainted. Mineral acids, ice to the back of the neck, the inspiration of cold vinegar, and other means, failed to arrest the bleeding. Dr Brunner, who was sent for on the third day, caused powdered gum arabic to be blown through a quill up the nostrils, and the hæmorrhage immediately ceased.—*Ib.*

XXI.   *Salivation cured by Calomel. (Rev. Méd., Hufeland's Journal.)*

In the House of Correction at Rawies, there was a man, aged twenty-three, who every day discharged a considerable quantity of limpid saliva. His face was œdematous, particularly about the submaxillary glands, but without being painful. The patient had a cachectic appearance. According to his own account, the affection came on from his being kept in a room where he slept against a damp wall. All the methods employed to check this affection were unsuccessful, and it went on increasing. At last, Dr Gumper, physician to the prison, ordered him one or two grains of calomel three or four times a day; and at the end of six days the patient was quite well.—*Ib.*

XXII.   *Ligatures of Silk-Worm Gut.*

A NEW species of ligature for securing divided arteries has been lately proposed by Mr Fielding, a highly respectable surgeon at Kingston-upon-Hull, namely, the silk-worm gut ; a substance in common use among fishermen, being by them attached to the end of their lines.   It is of great strength, but easily formed into knots if previously steeped in warm water.   Mr Fielding has published some cases in which these ligatures have been employed ; and states, that the vessels were effectually secured by them, and that although the knots never made their appearance, no abscess, nor any kind of inconvenience, was produced by them : consequently the wounds heal more readily, and the patient, according to Mr Fielding's statement, is put to less inconvenience by this plan than by the employment of fine silk ligatures, as practised by Mr Lawrence, the knots of which he has often found were not absorbed, but caused suppuration before they were discharged.   Such appears, indeed, to be the consequence in some cases of employing the silk ligature, but only in a small proportion of those in which they have been used : the recommendation of the silk ligature by Mr Lawrence, and that of the silk-worm gut ligature by Mr Fielding, are expressed in words so nearly alike, that, although the plan of the latter surely merits a further trial, its efficacy must be considered doubtful until such further trial is made.—*Ib.*

XXIII.   *Death in consequence of a Bite by a Cock.*   (*Arch.* *Gén. from Rust's Mag.*)

A STRONG and healthy young woman, aged thirty-six, was bitten in the region of the left eye by an irritated cock which flew at her. She paid little attention to the pain and the bite, and for about a week different ointments and plasters were employed.   The surgeon, however, often observed that when the dressings were changed, there were convulsive motions of the whole body ; and a spasmodic contraction on the face of the injured side.   The left eye became prominent, the pupil was dilated, and the globe of the eye was sometimes moved involuntarily, and in various directions : there was also trismus.   (These symptoms, and indeed all the symptoms, constitute a sort of practical illustration of Mr Bell's views of the nervous system.)   The plasters, when removed, were

always found covered with little granulations, and rather moist. The wound had penetrated the superciliary muscle, as far as the bone, near the upper orbitar foramen, and looked healthy. A hard, detached substance, of about the size of a lentil, was discovered at the bottom of it, of a calcareous nature. The treatment is not detailed : but pains in the back and limbs came on, want of sleep, difficulty of deglutition, stronger convulsive movements, and constipation. Involuntary stools succeeded, complete rigidity of the upper part of the body, diminution of the intellectual powers, groans, trismus, tetanus, and death.—*Ib.*

XXIV.   *Death from the Bite of a Viper.   (Arch. Gén. from Rust's Mag.)*

On the 26th of August, 1824, a shepherd of Radonsk, near Marienwerder, caught a viper in a wood, and gave it to another shepherd. The latter let the reptile twine itself round his arm, and allowed it to put its head in his mouth, on which the viper bit his tongue. The part immediately swelled so much, that when the man reached the nearest village he was unable to speak ; the swelling increased rapidly, so that his tongue hung partly out of his mouth ; and two hours afterwards the poor man died a victim to his imprudence.—*Ib.*

XXV.   *Mania from Sobriety.*

A very drunken fellow was imprisoned for theft, and put at once on a diet of bread and water. He very soon lost his flesh considerably, became pale and languid, passed his nights without sleep, and manifested a disturbed state of his intellectual faculties. Delirium supervened ; at first of a mild character, and afterwards more furious. The poor man imagined himself surrounded by horrible figures, which were inflicting torments upon him, and he uttered dreadful cries. Dr Hansbrandt, who was called to attend him, having learnt his previous habits, suspected that the total abstinence from alcoholic liquors had been the cause both of his emaciation and of the mania. He therefore ordered him to have a little brandy twice a day ; and, under this treatment, cerebral disturbance soon became allayed, the patient gradually regained his flesh and strength, and remained in good health during the rest of his period of imprisonment.—*Rust's Mag.*

[The following are translated from a new Journal publish-
ed in Paris, entitled *Journal des Progrès des Sciences et In-
stitutions Mèdicales en Europe, en Amérique, etc.* As we
have received this journal in exchange for our own, we shall
present our readers with much interesting matter in future
numbers. We have had time only to prepare the follow-
ing.]—Ed.

XXVI.   *A new method of separating the Placenta from
the Uterus in cases of profuse Hemorrhage after Par-
turition.*

An Italian physician has practised the following process with
uniform success. Having left the vein of the umbilical cord to it-
self for some time, that it may disgorge itself of the blood which
it contains, and having deprived it of this fluid as perfectly as pos-
sible by artificial means, he injects through it into the uterus, with
a certain degree of force, a quantity of water acidulated with vine-
gar. Either the sudden impression made upon the placental tissue
by the injected fluid, or the sensation of cold which is at the in-
stant communicated to the vascular structure which unites it to the
uterus, causes a separation always to take place, without being
under the necessity of introducing the hand into the uterus. In
case the first injection does not succeed, he repeats it a second and
a third time, always taking care to let the previously injected fluid
pass out of the vessels before he repeats the operation.—(*Reperto-
rio di Med. etc.   Torino, Maggio* 1826.)

XXVII.   *A Cure for the Asthma.*   By Doctor Francesco
Chiarenti.

This gentleman having observed that no means would relieve
those who were affected with asthma so promptly as a free expo-
sure to fresh air, and a free current of wind, he imagined that dis-
tending the lungs with air by means of bellows would produce the
same salutary effect. He, therefore, being himself afflicted with
this disease, introduced the nose of the bellows into his mouth,
and having compressed his nose, he blowed with considerable
force, and for a considerable time, a large quantity of atmospheric
air into the lungs. The operation was completely successful, and

with the aid of this simple instrument he could overcome in a few minutes the most violent attacks of the asthma. After having performed this experiment upon himself a number of times, he then performed it upon others, and with the same success. From the numerous experiments which he has performed, and from the many observations which he has made of their results, Dr Chiarenti does not hesitate to say, that he regards the blowing of air into the lungs, as a means, not only capable of relieving with great promptness the attacks of asthma, but also of radically curing this disease, when it is not the effect of great organic alteration.—(*Antologia di Firenze*, September 1825.)

Section III.—Intelligence.

VI. *An Extract of a Letter from* Dr Bartlett, *of Providence, R. I., who is now in Paris, to* Dr J. D. Fisher, *of this City.*

  'I believe I spoke in my last letter to you of a supposed case of aneurism of the common carotid at La Pitié. Lisfranc gave several cliniques on the case ; and insisted especially on the difficulty with which, in many instances, aneurisms were distinguished from ' tumeurs érectiles' or fungous hæmatodes. He carried the patient, who was a female, to the meeting of the Academy of Medicine, and requested and obtained the opinion of a considerable number of his professional brethren. He had had suspicions that the trunk of the artery was diseased and dilated, and feared it might be necessary to tie the innominata. It was decided by the members of the academy who examined it, that the case was one of *aneurism*, and that probably the trunk of the artery was sound. In regard to the latter consideration, he said immediately before the operation, he should govern himself by the circumstances ; and if, on arriving at the artery, he found it diseased, he should go down and tie the innominata. The operation was performed some fifteen days ago,—the artery found and tied with facility,—and the patient suffered but little. Lisfranc had always expressed his fears of a hemorrhage, *on the ligature's coming away.* Three or four days

since, there was a hemorrhage indeed, and the patient died. An examination was made, and there *was no aneurism* at all. It was a fungous hæmatodes. The ligature had not come away, but the artery had *ruptured* immediately below. It was a striking illustration of the text on which the surgeon had so emphatically dwelt— the difficulty in many cases of pronouncing with certainty on the nature of the disease.'

' M. Lisfranc succeeded so well in his last nose-manufacture, that he intends, in a few days, making another attempt.'

VII.   *Literary Notice.*

W. & J. Pendleton, Graphic Court, Boston, are engaged in publishing A Manual of Descriptive Anatomy of the Human Body, illustrated by two hundred and forty Lithographic Plates. By JULES CLOQUET, M.D., &c. &c. &c. Translated by JOHN D. GODMAN, M.D., Professor of Anatomy and Physiology in Rutgers Medical College, New-York.

This work will be completed in forty numbers, quarto ; each number containing six beautiful lithographic plates, accompanied by a translation of the text and explanation of the plates, printed upon fine paper, and in the quarto form, so as in all respects to resemble the original work. The letter press amounts to about 700 pages and upwards. The price to subscribers is one dollar a number, payable on delivery of the work, which is one-fourth cheaper than the French copy.

We are happy to learn that the anatomical work mentioned in the above prospectus, is to be re-published in this country, and translated into our own language. The first edition of this work was published in a folio size, and the plates were all drawn from the actual subject, the dissections for which were made by Cloquet himself. The success with which this work was received by the public, induced its distinguished author to re-publish it in a quarto form, that by reducing the price, all, both students in medicine and practitioners in the country, might be enabled to purchase it. It is this last edition that the Messrs Pendletons and Dr Godman propose to re-publish. A work of this kind is certainly greatly wanted in this country, where the obstacles to the study of anatomy from the real subject are so numerous. By a careful study of this work the student can gain not only an accurate knowledge of

general, but even of minute anatomy ; and the physician and surgeon, by merely referring to it, can easily revive his knowledge of the structure of the human system.   No work of this kind has ever yet been published in this country, and the difficulty and expense attending the obtaining such works from Europe, has deprived our physicians from possessing them.   The whole medical faculty of our country must therefore feel interested in the proposed publication, and we doubt not but that the publishers will receive a generous patronage from it.   We most sincerely wish them success.   We have examined the plates for the first number, and have compared them with the original French copies, and can assure our brethren that they equal, and in many respects surpass, the originals in neatness and beauty of execution.

Proceedings of the Convention of Delegates from various Medical Institutions, holden in Northampton June 20th and 21st, 1827, will be published in a pamphlet form, by Messrs Wells and Lilly, in a few days.

VIII.   *Massachusetts Medical Society.*

At the annual meeting of the Fellows of this Society, convened from all parts of the Commonwealth, the following preamble and resolutions were adopted with great unanimity and ordered to be printed.   All the resolutions, with one exception only, passed *nemine contradicente.*

Whereas, There is reason to believe that the habitual and intemperate use of ardent spirits is often the consequence of an opinion that such liquids contribute to the health of man,—and

Whereas, It seems to be a duty peculiarly belonging to this Society to oppose and correct so insidious an error :

Therefore Resolved, 1st, That in the opinion of this Society, the constant use of ardent spirits is not a source of strength and vigour, but that it is generally productive of weakness and disease.

Resolved, 2dly, That this society agree to discourage the use of ardent spirits as much as lies in their power ; and for this purpose, to discontinue the employment of spirituous preparations of medicine whenever they can find substitutes ; and when compelled to use them for any great length of time, to warn the patient of the danger of forming an unconquerable and fatal habit.

Resolved, 3dly, That the excessive and constant use of wine is, in the opinion of this society, a cause of many diseases; and that though it is useful in some of them, as in the stage of weakness in fever, its use is in these cases often carried too far and continued too long.

Resolved, 4thly, That in the opinion of this society, the most salutary drink for the general use of man is water; and that even this pure liquid must be employed in a rational and discreet manner, especially in hot weather; and that if we were called on to recommend some drink of a more stimulating quality we should advise the use of malt liquors.

Resolved, lastly, That this society will use the skill of its members, in ascertaining the best modes of preventing and curing the habit of intemperance; and that for this purpose, a premium of fifty dollars shall be offered for the best dissertation on the subject; which, after being approved by the counsellors, shall be read at the next annual meeting of the society, and afterwards printed; and that the authors be requested to point out the circumstances in which an abandonment of the habitual use of stimulating drinks is dangerous, and the effect of the use of wine and ardent spirits on the different organs of the animal economy.

To carry into effect the last resolution, the subscriber gives notice that the counsellors have directed that all dissertations must be sent to him, post paid, on or before the 1st of March 1828, and that each must be accompanied by a sealed paper containing the name of the author, and the premium will be paid to the successful candidate in money or by a medal, or a piece of plate, at his option.

<div style="text-align:center">GEORGE HAYWARD,</div>

<div style="text-align:right">*Rec. Sec. of the Mass. Med. Society.*</div>

IX.   *Officers of the Massachusetts Medical Society.*

At the Annual Meeting of the Fellows of the MASSACHUSETTS MEDICAL SOCIETY, held in Boston, June 6th, 1827, the following gentlemen were elected Counsellors for the ensuing year, viz :—

For Suffolk.—Drs W. Spooner, W. Ingalls, J. G. Coffin, J. Dixwell, J. Jackson, B. Shurtleff, J. C. Warren, J. Gorham, J. Randall, G. C. Shattuck, J. B. Brown, W. Channing, J. Bigelow, G. Hayward, E. Hale, S. D. Townsend, J. Ware.

Essex.—Drs B. L. Oliver, J. D. Treadwell, O. Prescott, J. Gardiner, R. Hazeltine, N. Bradstreet, N. Cleveland, J. Kittredge, J. Spofford, A. L. Peirson, A. Nichols.

Middlesex.—Drs A. Bancroft, C. Thomas, A. Heywood, R. Wyman, J. P. Chaplin, T. Bucklin, J. Walton, A. R. Thompson, Z. Howe, J. Hart.

Worcester.—Drs A. Haskell, J. Batchelder, Jr., D. Thurber, J. Green, B. F. Heywood, J. Homans, C. W. Wilder, A. Parker.

Hampshire.—Drs Elihu Dwight, W. Hooker, J. Stone, A. F. Stone, J. H. Flint, S. W. Williams, D. Hunt.

Berkshire.—Drs H. H. Childs, R. Worthington, W. H. Tyler, C. Worthington, R. Fowler, B. Rogers.

Norfolk.—Drs A. Holbrook, N. Miller, J. Bartlett, R. Thaxter, S. Bugbee, J. Stimson, E. Alden.

Plymouth.—Drs N. Hayward, H. Orr, C. Otis, E. D. Cushing, A. Mackie, E. Thaxter.

Bristol.—Drs Billings, Read, Johnson, Batchelder.

At a meeting of the Counsellors, held on the 7th inst. the following gentlemen were elected officers, viz :—

JAMES JACKSON, M.D., *President.*
AMOS HOLBROOK, M.D., *Vice President.*
JOHN DIXWELL, M.D., *Corresponding Secretary.*
GEORGE HAYWARD, M.D., *Recording Secretary.*
JACOB BIGELOW, M.D., *Treasurer.*
ENOCH HALE, Jr., M.D., *Librarian and Cabinet-Keeper.*

CENSORS.

For the First Medical District, and for the Society—Drs J. Dixwell, J. P. Chaplin, R. Wyman, J. Gorham, W. Channing.

For the Second Medical District—Drs J. Green, J. Homans, B. F. Heywood, E. Flint, C. Wilder.

For the Third Medical District—Drs E. Dwight, W. Hooker, J. H. Flint, D. Collins, E. Mather.

For the Fourth Medical District—Drs A. Perry, W. H. Tyler, L. A. Smith, H. Bartlett, O. Wright.

GEORGE HAYWARD,
Rec. Sec. of the Mass. Med. Society.
Boston, June 13, 1827.

Licentiates of the Massachusetts Medical Society and Doctors of Medicine of Harvard University have a right to become Fellows of the Society by complying with the By-Laws of the same, and the Laws of the Commonwealth, made in relation thereto. The following statement of the method to be pursued for this purpose is drawn up for their information.

1st. All Licentiates of the Society and Doctors of Medicine of Harvard University, after having been in practice at least three years, who wish to become Fellows of the Society, must make application for the purpose to the Counsellors in writing, addressed to the Recording Secretary.

2d. In conformity with a law of the Commonwealth, they must transmit with this application a certificate that they have been in practice at least three years, and also that they sustain a good moral character.

3d. This certificate may be signed by a Fellow of the Society, or the Clergyman, or one of the Selectmen, or any other respectable inhabitant of the town in which the candidate resides.

4th. The candidates must send with their application their license or diploma, as the case may be, and if this should not be convenient, 'a certificate from some Fellow of the Society, that he has seen the license or diploma ; and he shall particularly state the date thereof.'

5th. After receiving notice from the Corresponding Secretary of their admission, they must signify to him in writing their acceptance of the Fellowship, and their assent to the laws of the Society.

X.   *Medical Lectures in Harvard University.*

The Medical Lectures in Harvard University will begin at the Medical College, Mason-street, Boston, on the Third Wednesday in October next; the time having been *altered* from the *Third Wednesday in November*, on which they formerly began.

<div align="center">WALTER CHANNING,</div>

<div align="right">*Dean of the Medical Faculty.*</div>

Boston, July, 1827.

XI.   *Medical Graduates in Harvard University,* 1826–7.*

Massachusetts.

Amos Binney, A.M.,	*On the Sense of Smell.*
Alexander Thomas, A.M.,	*On Uterine Hemorrhage.*
Charles Pickering,	*On Fractures.*
Charles Walker,	*On Iodine.*
Edward G. Davis, A.M.,	*On the Pulse.*
Edward Frost, A.M.,	*On Dysentery.*
E. Chapin,	*On Sympathy.*
Isaac P. Hersey,	*On Dyspepsia.*
Jeremiah F. Ames, A.M.,	*On Fever.*
John G. Metcalf,	*On Pneumonia.*
John Jennison,	*On Fever.*
Joseph Reynolds,	*On Dysuria Cantharidum.*
John B. Stebbins,	*On Dysentery.*
Martin Gay,	*On the Circulation.*
Nathan C. Keep,	*On Indigestion.*
Samuel Shaw,	*On the Diseases of Literary Men.*
Thomas H. Thompson,	*On Dyspepsia.*

Rhode-Island.

Cyrus Briggs, A.B.,	*On Pneumonia.*
William A. Shaw,	*On Blood-letting.*

New-Hampshire.

Frederick A. Sumner,	*On Apoplexy.*
George Stearns,	*On Iodine.*

Maine.

Josiah S. Hook, A.M.,	*On Uterine Hemorrhage.*

Virginia.

Giles M. Stone,	*On Fever.*

* Medical Degrees in Harvard University are conferred semi-annually, viz. On Commencement Day in August, and immediately after the conclusion of the Winter Courses of Medical Lectures.

REVIEW.

X.

Experimental Researches on the influence exercised by At-
mospheric Pressure upon the Progression of the Blood in
the Veins, upon that Function called Absorption, and
upon the Prevention and Cure of the symptoms caused
by the Bites of Rabid or Venomous Animals. (Dedi-
cated by permission to his Majesty.)   With an Appendix,
containing the original Reports of Baron Cuvier and of
Professors Dumeril and Laennec, to the Royal Institute
of France, and to the Royal Academy of Medicine of
Paris, &c. &c.   By DAVID BARRY, M.D. Knight of the
Order of the Tower and Sword, Member of the Royal
College of Physicians in London, First Surgeon to the
Portuguese Army, Surgeon to the Forces, &c. &c.   Lon-
don : Thomas and George Underwood. 1826. pp. 175.

THE high encomiums which have been bestowed upon the
labours of Dr Barry in foreign journals, the stamp of appro-
bation which they received from the distinguished committee
of the French Institute, and the general consent which has
appeared to exist among medical men abroad, with regard
to the certainty and the importance of his discoveries, had
led us ·to form a high opinion of his merits, and to expect

great satisfaction from the perusal of his work.   To have
had the merit and the good fortune of settling, by clear and
undoubted experiments, two of the hitherto unsolved pro-
blems in physiology, were indeed honourable in the highest
degree to the individual, who was so happy as to have ac-
complished it ; and this was the claim which was set up by
Dr Barry and his friends.   It is true, that from such notices
as from time to time reached us in the public journals, we
could gather little that was perfectly satisfactory with regard
to the nature of his discoveries ; we doubted indeed whe-
ther they were not misunderstood, and consequently misre-
presented, by many of those who undertook to give accounts
of them.   In fact, after being satisfied that his views had
been fairly represented, it was impossible not to feel some
diffidence in the expression of an opinion with regard to his
merits as a physiological discoverer, which, in strict sincerity,
must be so much at variance with that of many distinguished
and more able judges elsewhere.   The duty, however, of
examining this subject cannot be passed by, and we proceed
therefore to give an analysis of his work, with such observa-
tions and criticisms on his doctrines as appear to us just.

The object of the memoir of Dr Barry may be best stated
in his own words; it is, he says, ' to demonstrate by proofs,
drawn from the anatomical structure of animals and from
direct experiment,

' First. The powers by which the blood is propelled through
the veins to the heart.

' Secondly. The comparative velocity with which it is moved
through the veins, and through the arteries.

' Thirdly. That the constant supply of blood to the heart, can-
not depend solely upon the causes to which it has been hitherto
ascribed.' p. 1.

The nature of the agency by which the blood is returned
from the extremities of the arteries to the heart, has been
frequently a subject of dispute among physiologists.   Harvey
believed that the heart was the sole agent in the circulation ;
that its power continued to operate through the capillary
extremities of the vessels, and carried the blood entirely

back to the chest.   In general, physiologists of the present
day are not disposed to admit this to be true, but have sought
in other agents the power which maintains the venous circu-
lation.   The sources of impulse which have been referred
to as being separately or in conjunction sufficient for this
purpose, are, according to Dr Barry, 1. The contractile power
of the arteries, whether the effect of muscular or elastic
fibres.   2. The insensible contraction of the capillaries, sup-
posed to be independent of the heart.   3. The action of the
veins themselves upon their contents.   4. The pressure of
muscles of voluntary and involuntary motion.   5. A sup-
posed dilating power in the cavities of the heart, which,
operating during the period of relaxation from its contraction,
draws up the blood from the veins like a suction pump.   6.
The resiliency of the lungs, or a disposition to contract and
lessen in bulk, which, tending constantly to produce a vacuum
in the chest, creates a similar tendency in the cavities of the
heart, and thus brings atmospheric pressure into operation
upon the blood in the veins, so as to force it to the heart.

For a very careful and ingenious examination of these
different opinions, the reader may be referred to the work
of Dr Carson,* in which, by way of preparation for the re-
ception of his own theory, he enters into a full consideration
of the various sources of impulse which have been thought to
bear upon the venous circulation.   Certainly, if he has failed
in producing conviction in favour of his own doctrine, it has
not been for want of an able and learned exposition.   Still
it must be confessed, that however clear his doctrines and
reasoning may have been to his own mind, his mode of stat-
ing and bringing them forward, without being deficient in
strength, is wanting in perspicuity, and is frequently very
difficult fully to comprehend.

Into the discussion of these opinions we do not propose
to enter, though it would be, in many respects, a useful in-
troduction to our account of the theory of Dr Barry.   We

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* An inquiry into the causes of the motion of the blood with an appendix, in
which the process of respiration and its connexion with the circulation of the
blood are attempted to be elucidated, by James Carson, M.D. Liverpool, 1815.

are willing to take it for granted, for the present, with him, that none of these methods will explain the venous circulation, and pass therefore to the consideration of his doctrines. Dr B. had long remarked, that atmospheric pressure has never been considered as an efficient agent in the circulation, Haller even throwing it entirely on one side, *ut pressio aeris pro nulla potest haberi.* This seemed to him wrong ; and he thought it impossible that the alternate expansion and contraction of the thoracic cavities should not affect the contents of the great veins opening into them. The tendency to a vacuum, which takes place in the chest during the act of inspiration, would, in consequence of the peculiar structure and situation of the heart and pericardium, produce a rush of fluids through the tubes leading into the heart, as well as of air through the tubes leading into the lungs. The inspiratory effort would not be wholly expended in drawing in air, but would have part of its efficacy directed to the drawing in of blood.

'Having once caught this view of the part which respiration might probably bear in the circulation, particularly of the venous blood, several known facts presented themselves in support of its correctness, *viz.*, the swelling of the external jugular veins during *expiration*, and their immediate collapse upon *inspiration*. The checking of certain hæmorrhages by forced inspirations ; the fatal accidents that have been known to follow the opening or the dividing large veins, and above all, the situation of the heart itself, placed in the centre of the chest in a bag, at all times too large for its volume, and which seems not only protected from direct atmospheric pressure, but is probably enlarged in all its diameters by the act of inspiration.' pp. 6, 7.

Dr Barry enters into some further reasoning, to show the probability of a tendency of fluids towards the chest during inspiration, upon mechanical principles. This was wholly unnecessary, since the thing is in itself perfectly obvious. No man can for a moment doubt the correctness of his doctrine, so far as it depends upon the existence of this tendency during inspiration. It is in the application of this fact to the explanation of the venous circulation, that it becomes a mat-

ter of controversy; we proceed therefore immediately to his experiments.

In the first experiment, an opening was made into the left jugular vein of a horse, and a large flexible catheter with a spiral glass tube attached to its outer end, pushed into the vein towards the heart as far as it would go. The end of this glass tube, which thus formed a continuous canal with the catheter, the air having been carefully excluded from both, was then immersed in a cup of water, deeply coloured with Prussian blue. The blue liquid immediately rose in the tube, passed round and round the spiral, and rushed towards the heart. This continued as long as the effort of *inspiration* continued; but the liquid halted, or returned slowly towards the cup during expiration.

' Not a drop of blood was seen to enter the tube, but bubbles of air sometimes appeared upon the surface of the liquid in the cup during *expiration*. The breathing being audible, allowed me to keep my eye steadily fixed upon the motion of the liquid, and to ascertain, beyond all possibility of deception, that this motion was entirely dependant upon the movements of respiration.' p. 12.

By raising the tube for a moment above the water, a few bubbles of air were admitted, which, passing round the spiral, with the blue liquid, rendered its motions more apparent than before. Towards the latter part of the experiment, when the respiration, from the distress of the animal, became hurried and irregular, blood appeared in the tube several times during *expiration*. The next inspiration, however, invariably restored the blue liquid to its place.

The following are the remarks of Dr Barry on the results of this experiment.

' During the various trials and repetitions of this experiment which I made upon horses, I had occasion to remark, 1. That when the animal was standing, although the coloured liquid invariably rose in the tube, atmospheric pressure was never so distinctly marked as when he was prostrate. This I proved by experimenting upon the same animal in both positions.

' 2. That the connexion between the motions of the liquid in the

tube and the respiration cannot be satisfactorily observed while
the horse is standing, because his breathing when in the erect pos-
ture, and at rest, is scarcely, if at all, perceptible.

' 3. That when the respiration became hurried from whatever
cause, or when it was embarrassed by disease, there was frequent
regurgitation of blood through the tube, but never once did this
occur except at the moment of expiration, and never under any
circumstance did the liquid ascend in the tube, except at the mo-
ment of inspiration.   This experiment, repeated upon the anterior
and posterior cavæ of dogs, afforded similar results.

' Here it is essential to remark, that if the communicating tube
be introduced into the femoral vein of a dog or horse, and pushed
no further towards the heart, inspiration will produce no effect
upon the liquid in the cup, because the relative vacuum of the
thorax can be filled up from the other veins of the animal's body,
which will require a weight of atmospheric pressure to send for-
ward their contents, *less* than would be necessary to force up the
blue liquid, by the sum of all the secondary powers, such as con-
tractility, *vis à tergo, &c.*   The influence of the atmosphere inva-
riably moves that first which requires the least pressure.' pp. 14, 15.

The second experiment consisted in the introduction into
each side of the chest of a tube, connected with an apparatus
similar to that in the foregoing.   The opening, as we under-
stand, was made in each case into the cavity of the pleura.
The result, as might be expected, was the rapid rise of the
fluid from the cup into the spiral tube, during *inspiration*,
and its fall during *expiration*.   Some other circumstances
connected with this experiment are detailed, but they are
not of importance as affecting the principal result.

With some difficulty, a similar communication was estab-
lished with the pericardium, and the results corresponded to
those which had been already obtained.

' In all the cases in which I succeeded in establishing a commu-
nication between the bag of the pericardium exclusively and a co-
loured liquid, the fluid rose in the tube as rapidly as in the former
experiments, and, in all but one, its motion upwards was governed
by the animal's inspirations.   In all, however, with the exception
of this single case, although the liquid invariably halted or de-

scended during expiration, there was an oscillation of the fluid up-
wards, which seemed independent of respiration, but could not be
observed during inspiration, because then it was confounded with
the general motion of the liquid upwards. This third movement was
acknowledged by my friend Mr Bennett, an anatomist and physio-
logist, as distinguished as he is modest.

' In the case of exception, the horse was in the last stage of ex-
haustion. The pulsation of none of his arteries could be felt, and
the liquid continued to flow upwards from the beginning to the end
of the experiment, without any intermission, and this whether he
was placed upon his back or his side.' pp. 20, 21.

The fourth experiment relates to, and is intended to con-
firm some remarks of our author, meant to show that the
venous circulation of the lungs, is carried on by means of at-
mospheric pressure, as well as that of the system at large.
He endeavours to prove that by means of certain motions
taking place in particular parts of the contents of the chest
during inspiration, *a vacuum is created at the roots of the
pulmonary veins, which, combined with the pressure of the
air rushing into the bronchiæ at the same time,* causes a col-
lection of the blood in the roots of the pulmonary veins.
This at least is his theory, so far as we were able to com-
prehend it. We must confess, however, that there is about
it an obscurity and improbability which may have prevented
us from thoroughly understanding it. To this point we shall
direct our attention hereafter.

In the fifth experiment, in which the author returns to the
subject of the general venous circulation, a glass globe, hav-
ing openings with projecting tubes at opposite points of its
surface, was made to form part of the course of the jugular
vein ; the tubes at each end being connected with the divided
ends of the vein above and below, so that the blood must
pass through the globe on its way to the heart. The blood,
as soon as this communication was established, passed freely
into the globe, and through it into the chest. In the follow-
ing passage, Dr Barry describes the appearances which he
observed during this experiment.

' I now carefully washed the outside of the glass, and placed

myself upon my knees, supporting my right hand extended upon
the ribs of the prostrate animal.   By this arrangement I was able
to apply my eyes close to the globe, and at the same time to feel,
in the most exact manner, the expansion and collapse of the tho-
rax.   The dark blood, which nearly filled the globe, left a small
space unoccupied at its upper side.   Very little light, however,
was reflected from the mass below, and therefore, whilst I observed
it in a sitting posture, there appeared to be no motion on the in-
side.   When I applied my eyes closely, I could distinctly perceive
the blood rise within the globe, and, as it approached the upper
part, assume a lighter red, as if a froth were raised upon it by the
rush to pass the lower opening.   This appearance regularly accom-
panied the elevation of the ribs, over which I held my right hand
expanded.   Having once caught the proper light, I could perceive
distinctly the motion of the blood in the globe, keeping exact time
with the inspirations.   The horse lay quietly, and breathed tran-
quilly.   The tube kept its place in the most satisfactory manner.
There was therefore neither hurry nor confusion.   I observed at
leisure the perfect coincidence of the passage of the blood through
the globe with the inspirations of the horse.   This I could not
have done so well in any other attitude, as the breathing was not
sonorous in this case ; for I could not have fixed my eyes on the
glass and on the thorax at the same time.

‘ I have said that I observed the blood flowing through the bulb
of the tube in exact correspondence with the expansion of the
chest.   The synchronism was just as well marked as in the ex-
periments with the blue liquid and the spiral, with this exception,
however, that in the present case there was no regurgitation, be-
cause the breathing was not hurried.   My observations were pro-
longed, repeated, and careful.   After watching the globe for some
minutes, I resumed my sitting-posture, returned again to the kneel-
ing position, and observed the same phenomena going on without
the slightest alteration.

‘ Three or four times I repeated this proceeding in different
lights, and constantly found the same uninterrupted coincidence
between the passage of the blood through the globe and the ele-
vation of the ribs.

‘ This experiment appeared to me so conclusive and unequivo-
cal, that I shall never require a repetition of it for my own satis-
faction.

'I had often tried this experiment before, but without having obtained very satisfactory results.   My failure I can now with confidence attribute to the length of the tubes which I had hitherto used, sometimes reaching from the angle of the jaw to the root of the neck.   In these cases, as soon as the globe was filled, all movement ceased, owing to the blood being protected from atmospheric pressure through so long a portion of its horizontal course, which also deprived it of the influence of gravitation.   My complete success with the short tube justifies this remark.' pp. 32—34.

We quote, at length, the conclusions at which Dr Barry arrives, from the premises of which we have thus given an account.

' From what has been said, and from what has been observed in the experiments, the two following facts may be considered as proved :—

' *First,*—That the cavities of the great veins within the thorax, and all the thoracic cavities, draw towards them the fluids with which they are placed in direct communication.

' *Second,*—That this attraction, or suction, never takes place but during the expansion of the thorax, that is, during *inspiration.*

' From these facts, and from what we have seen in the last experiment, we may conclude,—

' 1st. That the blood which *runs contrary to its own gravity, arrives at the heart only during inspiration.*

' 2dly. That the power which impels it at this moment through the veins, is atmospheric pressure.

' 3dly. That as this power can be applied to the blood of the veins only at the moment of inspiration, this blood must move with a velocity which is, to that of the blood moving through the arteries, as the time occupied by a whole respiration is to the time occupied by a single inspiration.

' 4thly. As the blood passes through the greater veins during inspiration only, whilst it is incessantly traversing the arteries, it follows, that an accumulation must take place somewhere between these two orders of vessels, and that the quantity of this accumulation must be to the quantity which passes through the arteries during an entire act of respiration, as the time of one expiration is to that of a whole respiration.

' 5thly. That, as it makes no difference with regard to the event, whether the accumulation which must be prepared for the expansion of the thorax, be made by two pulsations of the arteries or by ten, it follows that the frequency of the pulse cannot be taken as the measure of the velocity of the blood returning to the heart, because it is the repetition of the inspirations which must regulate this velocity.

' 6thly. That there are three quantities of blood; one passing through the arteries, one which is sucked up by each expansion of the thorax, and a third, which is collected during expiration between these two points. When therefore the respiration becomes hurried, this third quantity is diminished, whilst the other two are increased in proportion ; but as the heart can admit only a certain quantity, the expanding cavities regurgitate the surplus during their collapse. Hence pathological phenomena, into which I shall not enter for the present.

' 7thly. That the lymph and chyle must be sucked up towards the chest, through the direct communications which the vessels peculiar to these fluids have with the subclavian and other veins. The question of absorption, therefore, which has hitherto puzzled physiologists so much, may now be considered as decided, for it is clear that the open mouth of a vein, or of any other vessel, having the same kind of communication with the thoracic pumps, must absorb in direct proportion to the sucking power applied to it, and to the pressure exercised upon the matter to be absorbed.

' If this last proposition be well founded, so ought to be the following corollary, *viz.:*

' *That the application of a powerful cupping-glass to a recently-poisoned wound, would prevent the absorption of the poisonous matter.*

' 8thly. It being now evident, from every thing that has been said, that the blood in the veins is placed under the influence of atmospheric pressure, it would be curious to trace the connexion which appears to exist between disease generally, intermittent fever for example, and the daily barometric variations.

' 9thly. The preceding facts explain also why animal life cannot be maintained beyond a certain degree of atmospheric rarefaction, and why it must cease as soon as the pressure of the surrounding air ceases to be superior to the gravity of the column of blood. Birds are provided with a respiratory mechanism, which, in some measure, exempts them from this inconvenience.

' 10thly. At the cardiac extremities of the great veins there exists, as we have shewn, a mechanism, which, when called into action by the expansion of the thorax, distends their cavities, and, consequently, causes the suction of the blood of the veins of the lesser, as well as of the greater, circulation.   Now, as this mechanism can act only during inspiration, and as, from its construction, and its position, it must necessarily affect those portions of the auricles within the pericardium, called the sinus venosi, it follows that there can be no alteration of contraction between these parts of the auricles and the ventricles corresponding to the pulse, because the sinus venosi must be in a state of progressive distension from the beginning to the end of *inspiration.*

' The influence which this disposition of the parts, as well as the series of facts hitherto noticed, may have upon the motion of the heart, and upon the passage of the blood through this organ, will form the subject of another Memoir.

' I shall not now trespass longer on the attention of the Academy, by endeavouring to enumerate all the conclusions deducible from the facts, which, I trust, will be considered as proved by the experiments.   In whatever light the results of my researches may be regarded, whether as merely explanatory of some doubtful points, or as sufficiently novel and important to constitute a discovery, I have brought them as an offering to the Temple of French Science, where, fortunately, Prejudice has not yet stript Physiology of that portion of philosophic honour which is her due.' pp. 35—40.

This, as we understand it, is all that was offered by Dr Barry to the Institute, as the foundation of the report made by its committee.   He adds to it, in the present publication, a supplement, in which he introduces a variety of statements to illustrate the physical application of the principles which he has advanced, to the venous circulation, and to show that ' the two paramount laws of nature, gravitation, and atmospheric pressure,' are equally operative with regard to animated as to inert matter.   To say nothing of the absurdity of calling atmospheric pressure a paramount law of nature, implying from the mode of the expression, that it is a power in the same sense with gravitation, we may remark that the physical conditions which he supposes in these statements,

are not similar to those which exist in regard to the circulation, since he throws out of view entirely the consideration, that there is in the chest a communication always open with the external air. The following experiment was contrived and performed for the purpose of showing the truth and applicability of his illustrations. In this point of view, it would not be necessary to introduce it, but as it has independently some relation to Dr Barry's theory, we insert it.

' I fixed the glass tube in the jugular vein of a horse while he was standing, in such a way that the current of the blood must pass through the globe, and I observed, 1st, that the jets which fell from the end next the head were not synchronous with inspiration ; 2dly, that they were more frequent than the pulse, but that the beat of the artery had a marked influence over them. Thus the jets falling into the globe became much less distinct when the carotid was even lightly pressed, than when it was free ; but the influence of gravitation was constantly sending some drops into the globe. When the horse was thrown, and placed horizontally, the movements of the blood through the globe were perfectly synchronous with those of inspiration. When the horse was again placed on his legs, the vein above the upper end of the tube having become straightened by exposure to the air, a pulsation was observed at that point, the acme of whose swell was precisely synchronous with that of the carotid.' p. 51.

The conclusions, in which our author rests from the whole of his investigations, are as follows :—

' From what we have seen in the Memoir, and from what has been said in the Supplement, it is evident that fluids, whether moving through living, or through inert tubes, obey the laws of pressure and of gravitation ; and that in the quiescent living animal, the only demonstrable active powers employed by nature to propel the contents of the veins towards the heart, are—

' First, The impulse given by the pressure of the heart itself, continued through, and propagated by the arteries. By this power the blood is sent into the situation where it can be most favourably acted upon, by

' Secondly, Atmospheric pressure, diminished or entirely taken off around the cardiac ends of the venous tubes during the expan-

sion of the chest, but unaltered and entire around every other part
of their surface, opposed only by the gravity of the fluid acted
upon.

'Thirdly, Gravitation, when the heart is relatively the most
depending point, or when this power is acting with the pressure of
the heart's contraction upon the base of the venous column.

'Of these powers *the pressure of the atmosphere is by far, the most
intense in its degree, the most constant in its influence, and the most
unvarying in its amount. It is that without which the circulation could
not be maintained beyond a few moments.*

'Hence it must now be needless to repeat that the constant sup-
ply of blood to the heart cannot depend solely upon the causes
to which it has been hitherto ascribed, as already stated at the
commencement of the memoir.' pp. 56—58.

No one would pretend to deny after these experiments,
nor indeed after the simple consideration of the reasoning
by which Dr Barry was led to them, that during inspiration
there is a decided flow of the venous blood in the neigh-
bouring venous trunks towards the heart. But, although
this may be readily admitted, it might still remain a ques-
tion, whether this flow contributes in any material degree to
facilitate the venous circulation ; or, if allowed, that it does
in a material degree facilitate it ; whether we can attri-
bute to this circumstance so large a share in the operations
of the circulation, as he is inclined to do.

It will be perceived, that our author throws entirely out
of view the impression which must be made upon the blood
in the veins by the effort of expiration. For the same rea-
son that the act of inspiration would determine a flow of
blood through the veins into the thorax, the act of expira-
tion would determine a flow of blood through the same ves-
sels out of the thorax. Nothing can be more obvious than
this ; and, according to all the laws of physics, the influence
in the one case should precisely balance that in the other,
unless there is some provision in the circulatory apparatus
to prevent the reflux operation. It appears, even from the
experiments of Dr Barry himself, that the reaction during
expiration, often equals very nearly the action during in-

spiration. In the first experiment, the motion of the blue liquid was not steadily upward as it should have been, but oscillatory, rising during inspiration and falling or halting during expiration. There is a want of attention in stating particularly how much of the liquid did pass into the circulation. It is said in general terms, that 'a considerable quantity of cold water, and also of air, had now been forced into the vein, and thence to the heart.' But, a few lines after, we are told, 'that when the animal's respiration became hurried and irregular, blood appeared in the tube on two or three occasions during *expiration ;*' from which it would appear, that no very decided current could have passed into the vein. It is true, that in the fifth experiment, there appears to have been a regular passage of blood through the glass globe, from one part of the jugular vein to another, and with a motion corresponding to the act of inspiration. But in this case, whatever be the agent of the venous circulation, there must have necessarily been a current of blood through the tube and vein, unless the regular circulation were arrested. The only other case in the course of Dr Barry's experiments, in which the atmospheric pressure seems actually to have forced a current of liquid into the chest, is recorded in the appendix by M. Legallois, a son of the celebrated physiologist of that name. It was a repetition of the first experiment, performed on a dog, in the presence of Laennec and some other distinguished men.

'The results were the same, with this difference merely, that during expiration there was no regurgitation of venous blood into the tube. During inspiration, the liquid flowed in abundance towards the heart, and there soon remained no more of it in the cup, which we were obliged to fill a second time.' p. 165.

Did these experiments stand alone and had the phenomena which they present, occurred during the ordinary respiration of the animal, they would unquestionably have afforded some support to Dr Barry's theory. But it must be remarked, that in these cases the animal had been thrown down, was

firmly held, and had suffered from a painful operation; all which circumstances would tend to increase very much the violence of the respiratory efforts.   Dr Barry himself admits, in some remarks which we have quoted in connexion with the first experiment, that when the animal was standing the effect of inspiration was far less observable.

It is obvious why, when respiration is violent, this effect of the act of inspiration should be much greater ; for, although the power by which the air is to be drawn in is increased, the tube through which this air is to pass is not enlarged in size.   The consequence is, that the tendency to supply the vacuum in the chest expends itself more in proportion to the whole, upon the blood in the veins, than in ordinary cases.   And besides, although the force with which the inspiration is made is increased, that by which expiration is made is not generally increased, as any one may observe who will notice hard breathing, where there is no mechanical obstruction.   Hence, in violent breathing, the tendency towards the chest is increased, whilst the effort of regurgitation is not increased in proportion ; and this may account for the cases in which there was an actual passage of fluid towards the heart in Dr Barry's experiments.

But it may be asked, granting the disposition to regurgitation to exist, is there no provision in the venous circulation to secure the ground which is thus gained by inspiration, and prevent this disposition from taking effect ? The valves of the veins, were they sufficiently near, and did they completely close the passage of the vessel when it is distended, as it would of course be in this case, might certainly answer this purpose.   But according to anatomists, they do not exist in the inferior cava, nor do they in the distended state of the vessels completely close their cavity.   In fact, regurgitation has been observed at a considerable distance from the heart ; Haller notices it as occurring in the iliac veins.   (Bichat Anat. Gen.)   But does not the succeeding column of venous blood present sufficient resistance ? If the vein be distended, can there be any regurgitation ? Certainly not, were the fulness occasioned by the *vis à tergo ;* but the

distension of which we have spoken only occurs when the
regurgitation takes place.   Till that moment the great veins
in the neighbourhood of the heart, which are without the
chest, are necessarily flaccid.   By the very theory in this
case the blood is drawn out of them by the suction power
of the chest, and its place only gradually supplied by the
vis à tergo.

The structure and texture and situation of the veins is
such, that were there no other objection to the truth of Dr
Barry's theory, we might derive one from them.   Can any
one believe that atmospheric pressure will raise a column of
blood, extending from the lower extremities up to the heart,
through a tube so yielding and compressible in its texture as
a vein, surrounded too as it is, in the abdomen particularly,
by parts, whose pressure upon it are alone sufficient to ob-
struct the motion of the blood from such a cause.   That
this objection is well founded will be seen by referring to
the account of the first experiment, on p. 15, where we are
told that the liquid does not rise in the tube, when it is in-
serted into the femoral vein.   That the solution there given
of the fact is insufficient is obvious from the consideration,
that, according to this theory, the pressure is sufficient in
the natural state to keep up the circulation ; and of course
ought to be at least sufficient to produce some effect upon
the liquid in the cup, even when connected with that vein.

This leads us to mention another circumstance in conduct-
ing these experiments, which has no doubt contributed very
much to produce results favourable to the theory of our au-
thor, viz. that he employed unyielding incompressible tubes
for the most part in his researches.   Now it is certainly
questionable, whether he would have obtained the same
results, if, instead of a catheter and a glass tube, he had
made use of a tube as compressible as the veins of the body.
It would not probably be difficult, for those accustomed to
such investigations, to calculate, what the strength and resist-
ance of the parietes of the veins should be, in order to sup-
port the column of blood which must be supported by them,
if this theory be true ; but this is not necessary in order to
the views of it which we are disposed to maintain.

We would here call the attention of our readers to the difference between the structure of the tube through which the air enters the lungs, and that through which the blood enters the chest.   The former, the trachea, is a firm cartilaginous tube, whose texture enables it to resist at once the pressure of the air, and the tendency of the surrounding parts to obliterate its cavity by pressing its opposite sides together ; the latter, the veins, are so unresisting and yielding in their texture, that their walls fall into contact with each other, and destroy their permeability as soon as they cease to be distended by a liquid thrown into them by external force.   Now, if such a nice provision were necessary in the case of the tubes through which air is to be admitted, is it not reasonable to conclude, that the same provision would be necessary in regard to the tubes through which blood is to be admitted, if the latter be forced into the chest by the same pressure with the former ?

But suppose it were even true, that the blood is thus called into the chest from the veins by the act of inspiration, there still remains a difficulty which is not obviated by the theory.   At each inspiration must be admitted a quantity of blood equal to that which is sent out by the heart at three or four contractions, because in the state of health, there are about that number of contractions to each act of respiration. There must then be a reservoir of venous blood in the chest, which contains, when full, enough of this fluid to supply the heart till the next inspiration.   But this reservoir can only be full for a single moment ; so soon as one contraction of the heart has taken place, it becomes flaccid.   What then throws the blood from it into the heart, in order to supply its next pulsation ? Is it the pressure upon it which unquestionably exists during the period of expiration, which pressure, as we have maintained, also tends to produce a regurgitation into the venous system ? We do not deny that this might have some effect.   But, if it be admitted to be the principal agent, what is the agent which throws the blood into the heart at the time of *inspiration*, when the pressure produced by the motions of the chest operates to draw the

blood from the heart, rather than to throw it into its cavities.
At any rate, whatever be the operation in expiration, it must
be precisely opposite to that which takes place in inspiration,
and of course the injection of blood into the heart cannot,
in both cases, be accomplished by the same means.

The motion of the blood in the veins towards the heart
appears to us to be in health too steady, uniform, and equal,
to be brought about by any cause which acts in a manner so
unequal, and at such intervals as the atmospheric pressure
during the period of inspiration. What the cause of this
motion probably is, we propose to show in the sequel. At
present we have only a few words to say with regard to the
author's theory of the *pulmonary* venous circulation. This,
as was intimated above, he is also inclined to attribute to
atmospheric pressure. His vacuum is produced by the mo-
tions of the chest in inspiration, which pull some part of the
lungs—we do not pretend to understand what—in such a
direction as to create it at the terminations of the veins.
Into this vacuum the blood is driven by the pressure of
the air which rushes into the air cells during inspiration.
This is certainly a most extraordinary supposition. We
hear often enough of imperium in imperio, but a vacuum
in vacuo is a new thing under the sun. As if a vacuum
could be created among parts, all equally acted upon by the
same cause, towards which liquids should rush from parts
which at the same moment are receiving a supply of fluid
from without, to fill up a vacuum created in themselves. As
if the air rushing into the chest for the purpose of equalizing
the pressure within and without, could operate to drive the
blood from one part of the chest to another, where the press-
ure is precisely the same. As if the dilatation of the por-
tions of the lungs near the place of the supposed vacuum, by
the entrance of air from without, would not immediately fill
it up, instead of this rush of blood from a distant part for that
purpose. Dr Barry speaks of the rushing in and pressure
of the air in the lungs upon the fluids circulating in the ves-
sels, precisely as if it were driven in by an external force
against the pressure and resistance of the chest, instead of

being driven in by the pressure of the atmosphere, in consequence of the cessation of this resistance and pressure.

But beside these objections, there are two others we are about barely to suggest, either of which, in our apprehension, is fatal to the theory of Dr Barry.

The first is, that the act of inspiration is not at all necessary to the perfect performance of the venous circulation, inasmuch as artificial respiration has been continued several hours upon animals, whose voluntary motions had been suspended by poison, and yet the motion of the blood been preserved, so that the functions of life have subsequently gone on perfectly well. We place in a note, the details of one of the experiments of Mr Brodie in proof of this point.* Now it is obvious, since in artificial respiration the mechanical force applied is precisely opposite in its direction to that which operates in the natural respiration, that, so far from promoting the venous circulation, it would prevent it, if it had any effect at all. But as the circulation goes on perfectly well, both during natural and artificial respiration, it is fair to conclude that it has no appreciable effect upon either.

* The poison of woorara was applied by Mr Brodie to a young cat twice. In four minutes after the second application, respiration entirely ceased, and the animal appeared to be dead ; but the heart was still felt acting about one hundred and forty times in a minute. She was placed in a temperature of 85°, and the lungs were artificially inflated about forty times in a minute. The heart continued acting regularly.

'When the artificial respiration had been kept up for forty minutes, the pupils of the eyes were observed to contract and dilate on the increase and diminution of light; saliva had flowed from the mouth, and a small quantity of tears was collected between the eye and eyelids ; but the animal continued perfectly motionless and insensible.

'At the end of an hour and forty minutes from the same period, there were slight involuntary contractions of the muscles, and every now and then there was an effort to breathe. The involuntary motions continued, and the efforts to breathe became more frequent. At the end of another hour, the animal for the first time gave some signs of sensibility when roused, and made spontaneous efforts to breathe twenty-two times in a minute. The artificial respiration was discontinued. She lay as if in a state of profound sleep for forty minutes, when she suddenly awoke and walked away. She gradually recovered perfect health.'

In another experiment, artificial respiration maintained the circulation for *four hours.* For three hours the pulse were strong and regular, but the action of the heart then began to flag, and at the end of the fourth hour circulation ceased.— *Phil. Trans.* for 1812, pp. 207, 8.

The second objection is, that the power exerted by the chest in the act of inspiration, is totally inadequate to produce the effects assigned to it by Dr Barry. This may be shown by a very simple experiment. Two tubes were taken, one of which was of glass, and one end of each placed in the mouth. The other end of the glass tube was placed beneath the surface of some water in a tumbler, and the other left open to the air. Breathing was then carried on through the mouth and tube. It is perfectly obvious, that the rise of the water in the glass tube during inspiration would be an exact measure of the power which would be exerted upon the blood in the veins during inspiration. In ordinary easy breathing, the column raised in the glass tube barely exceeded half an inch, and certainly did not amount to an inch. In hard, laborious breathing, the column never amounted to more than five or six inches. And the whole inspiratory effort of the chest, made with the air tube closed, did not raise a column of more than fifteen inches. Now, if the theory of Dr Barry were well founded, a column should have been raised during our easiest breathing of not less than four feet in ordinary men. On the most favourable estimate, the power actually exercised does not amount to a forty-eighth part of what would be required.

Having thus freely expressed our opinion with regard to the inferences to be drawn from the experiments and reasonings of Dr Barry, it is no more than decorous to notice, what has been considered as the very favourable report of the committee of the Institute with regard to his labours. It is not amiss here to remark, that nothing has tended so much to give currency to his opinions, as the impression that their truth was admitted by such men as Cuvier and Dumeril. It were a hard task indeed to attempt the overthrow of opinions which have the sanction of their authority, or to deny inferences which they have derived from experiments which they themselves witnessed ; but we have carefully examined this report, and draw from it an inference with regard to the opinion of the distinguished authors of it, somewhat different from that which has been generally

done.   The report is vastly polite.*   It is in this particu-
lar truly French.   There is no doubt also that it bestows
commendation on Dr Barry, and implies belief in some of
his results ; but this with qualifications which seem to us
sufficient to balance the expression of belief.   We quote the
whole of the conclusion of the report.

‘ In concluding this report upon M. Barry’s interesting Memoir,
we feel it our duty to declare, that the experiments described with
much detail by the author, have been performed and repeated
more than twenty times upon dogs, upon sheep, upon horses ; that
they have constantly succeeded whenever he was able to bring
fairly into operation the ingenious apparatus which he had con-
trived for the purpose ; and that these experimental researches
took place under our eyes, at the School of Medicine, at the King’s
Garden, at the School of Alfort in presence of Mr Girard, and at
the Abbattoirs of Montfaucon.

‘ Your commissioners consider these researches as made in the
very best spirit, and as eminently calculated to elucidate the phy-
siological history of the venous circulation in the mammalia.

‘ Under this impression they have the honour to propose to the
Academy—that the author be invited to continue his investigations
relative to the causes of Absorption, a subject which presents much
interest, and the most useful applications to the animal economy ;
and that M. Barry’s Memoir be inserted amongst those of learned
strangers.

‘ Your commissioners, however, must not conceal that in their
particular opinion the act of inspiration which appears to produce
a vacuum within the thoracic cavities of animals having lungs,

* There are some circumstances which would appear to indicate that the dis-
tinguished authors of this report, did not examine into the subject with that care,
or at least did not express themselves with that accuracy, which is the duty of
men who are aware that their opinion is to exercise a great influence upon that
of others.   As an evidence of this carelessness, we may quote the following pas-
sage :—‘ M. Barry attributes the dilatation of the heart itself, and of its auricles,
to the tendency to a vacuum which takes place in all the cavities of the chest, dur-
ing inspiration.’ p. 71.   Now M. Barry, as we understand him, does not attribute
the dilatation of the heart to this cause ; and if he did, the commissioners should
have shown him, that, as there are often in health three pulsations of the heart to
each complete respiration, the dilatation of its cavities could not, in each case,
be owing to the tendency to a vacuum produced by inspiration.

such as the mammalia and birds and consequently the attraction of
the venous blood towards these cavities, is not sufficient to explain
the motion of the blood in the veins of fishes, and of some reptiles,
in which the mode of respiration is different. The same coinci-
dence of action not being observed between inspiration (which in
these animals is a species of deglutition), and the arrival of the
venous blood at the cavity of their hearts.

(Signed)   BARON CUVIER,

DUMERIL, *Reporter.*' pp. 72, 73.

The consideration of the mode in which the venous cir-
culation and respiration is performed in fishes and reptiles,
to which reference is made in the concluding remarks of this
report, afford a very strong argument against the whole the-
ory of Dr Barry. Politeness, no doubt, prevented the re-
porters from urging this argument with all the force of which
it is capable ; but it is evident, from their mode of expres-
sion, that they allowed to it considerable weight. In no
way, it seems to us, shall we be so likely to arrive at right
conclusions with regard to the theory of the venous circula-
tion, as in examining it by the light of comparative anatomy.
The light derived from this source is more certain, we ap-
prehend, than that derived from experiments on living ani-
mals. In fact, in the construction of animals upon different
plans to suit them to different modes of existence, we may
regard nature as performing experiments in her way. Thus,
in the construction of a fish, she illustrates the mode in which
the respiration and circulation may be carried on without
lungs and without the left side of the heart. May we not
draw somewhat such an inference from this experiment, as we
could from an experiment upon a living animal, were such an
experiment practicable, in which respiration was made to go
on without the mechanical motions of the chest, and circula-
tion maintained through the left side of the heart without its
action, merely by the force with which the blood arrives from
the lungs. We see and know enough of the economy of these
animals, to be satisfied that the general principles of vital
action are similar in all ; that absorption, secretion, the nu-
trition taking place in the capillaries, muscular action, ner-

vous communication, proceed upon the same principles in all. And hence we have some ground to argue, that, so far as similar circumstances permit a similar arrangement, the other functions, as circulation, respiration, and digestion, will be carried on upon similar principles in all.

It seems probable, from what we know of them, that the system of capillary vessels is entirely distinct from and independent of both the arterial and venous systems, except for a supply of blood from the former, and for the removal of the remaining portions of it after the act of nutrition or other function of parts, by the latter.   We are confirmed in this opinion by the existence of animals, in which there is nothing but a capillary circulation, and in which all the motion which the nutrient fluid undergoes, must be produced by the action of capillary vessels.   This system would seem, therefore, to be the primary and original part of the circulating system, and, indeed, the most essential part. The next step from these animals brings us to those in which there are large vessels going from one part of the capillary system to another, *e. g.* from the capillary system of the respiratory organs to that of the body, and *vice versa.*   Yet the motion of the blood in these large vessels is not occasioned by their own action, but by that of the vessels from which it has come, viz. the capillaries ; at least so we have a right to conclude from the fact, that there is no indication either in the structure of the vessels or in their apparent action, of their having any other office than that of simple conduits.   Going a step further, we find the rudiments of an organ like the heart placed at some central point of the large vessels, and intended probably to give to the blood a fresh impulse, the power derived from the capillaries not being sufficient to carry it through the whole course of the circulation.   From this the transition is easy to the complete single heart as in fishes, regulating and directing and assisting the passage of the blood through one part of its circulation, and finally, to the double heart, as in man and other warm-blooded animals.   We may draw the inference, from this connected view of the steps taken in the gradual perfection

of the circulation ; that the capillary system is its primary and essential part, and that the large vessels and the heart are added to it, as the purposes of the animal economy become more complicated, as the circulation consequently requires greater variety, and as greater obstructions are presented to the passage of the blood.

These considerations, if well founded, afford us some grounds on which to proceed in forming our judgment of the venous circulation in man. No theory appears to us in any degree satisfactory, except that which attributes it to the force of the capillary system ;* not to the force of the heart continued through the extremities of the arteries into those of the veins, but to the independent and original power of the capillaries themselves. When we reflect, what the functions are, which are carried on by these vessels, we can hardly doubt that the blood in them ceases to be under the influence of that motion which it has in the arteries. Nutrition, secretion, and exhalation in all their varieties, imply operations in the minute vessels and changes in the state and composition of the blood, which we can with difficulty conceive to take place, if we suppose this fluid merely to pass through these vessels without any delay. The office of the arteries seems to be simply, that of carrying the blood and depositing it in the capillary system. This system has it then entirely under its control for such a period as may be necessary to the particular purposes for which it is required ; and it is then delivered into the venous system. That the capillary system has this control of the blood, independent of that exercised by the arteries, is perfectly consistent with the most common facts in physiology and pathology. The quantity of blood in the capillary vessels is constantly varying, according to circumstances which have no connexion

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* The theory of the venous circulation, which refers it to the action of the capillaries, is stated and partially adopted by Bichat. General Anatomy, Hayward's translation, vol. 1. p. 420, &c. He does not, however, express that confidence in it which it seems really to deserve. For a very satisfactory statement of some of the principal direct arguments in favour of this theory, see the second number of the present volume of this Journal, p. 181, in a paper by Dr Slack.

with the arterial circulation ; they can, on the one hand, call for an additional supply, as in inflammation, or in increased secretion, or in the passage of red blood into vessels which do not ordinarily transmit it, as in blushing ; or they can, on the other hand, resist the admission of blood, as in states of deficient circulation in the extremities, on exposure to cold, during rigors, and under various other circumstances, both of health and disease. Indeed, there is a multitude of facts of a similar kind, which render almost indubitable this independence of the capillary circulation.

Not that the state of the arterial circulation may not produce some influence upon that of the capillaries ; but we believe that, in general, the influence is exerted in the opposite direction, and that the state of the capillaries influences that of the heart and arteries. How is it in disease ? Disease chiefly originates and exists in the capillary system ; its processes are all carried on by the capillary vessels ; it often affects the circulation of the capillary system all over the body. Now the heart always keeps pace with the alterations which are thus produced ; it accommodates its actions to the combined state of the capillaries, to which it is naturally subservient ; so that the pulse may ordinarily be regarded as expressing the state of the capillary circulation and of the powers by which it is supported.

What inference then is to be drawn from this view of the capillary system ? Why that, if it has this independent controul of the blood, it must regulate the manner in which it leaves it, as well as that in which it enters it. After performing such operations upon the blood as may be required, it throws out the refuse, or that which is superfluous, into the venous extremities. Into every extremity of the ramifications of the veins, blood is constantly injected with a certain degree of force from the capillary vessels. Now the contractile force of any single capillary is minute and almost unappreciable, but its propellent effect being inversely as its diameter, its power to return the blood must be vastly superior to all the resistance which is opposed to it. Hence, although the quantity which is thus thrown by each particu-

lar vessel is extremely small, yet, when we consider it as coming from all the venous extremities, and recollect that all the innumerable vessels of the capillary system are constantly engaged in injecting blood into the venous system, the total effect of the power thus exercised must be prodigiously great.

That it is great, we may prove from the phenomena observed in the common operation of venesection. The force with which the blood is thrown out, at the moment of the operation, is due entirely to the capillaries which supply that vein, or perhaps we should rather say is a fair measure of their power ; for if it be said that it is the re-action of the venous coats, or of the distended textures around the vein, which throws out the blood with so much force, it may be answered, that this force does not the less express that of the capillaries, because they actually inject the blood into the vein against this very resistance, and in fact have power to produce this very distension.

The question then recurs, is this power sufficient to carry on the blood to the heart without any extraneous assistance from those causes which have usually been thought to aid it? We answer, yes. No one can doubt that it is, in those cases where the stream is thrown from the orifice to a distance of several feet. And where it is projected but a small distance, the defect is not so much in the want of a sufficient power, as in the size of the stream and the rapidity with which it moves.

We must recollect that on this supposition we have the whole capillaries of the body carrying, by their united action, the same quantity of blood back to the centre of the system, which the heart has already sent from the centre to the extremities.

We are to regard the heart then, as the agent of one part of the circulation, opposed to the whole united capillary system, as the agent of the other part of the circulation. Can we doubt that their united and combined power is equivalent to the single power of the heart—that it is even greater? We cannot conceive that it should be doubted ; and if it be not, then are the capillaries adequate to the maintenance of the venous circulation.

The great difficulty with physiologists seems to have been, to find an agency which shall account for the motion of the blood in the large veins, and in those near the heart. In the smaller veins and in the extremities, there seems no room to doubt that the circulation must proceed from a *vis à tergo* derived from some source or other. But the quantity of power required to finish the transmission of the blood from those parts of the circulation to the heart, is very small in proportion to that which has been already expended in bringing it there. It will assist us in conceiving of the truth of this remark, if we consider that the blood is moved in the veins towards the heart, against a resistance which is constantly diminishing, whilst the blood is moved by the power of the heart in the arteries against a resistance which is constantly increasing.

This, it is true, is a representation of the case in a different light from that which has been sometimes made. It is common to speak of the circulating systems as being represented by a cone, the apex of which is at the heart, and the base in the extreme vessels. So far as the area of the vessels is considered, this is no doubt the fact. But this illustration, which properly regards their size and contents only, has been supposed also to be applicable to the motion of the blood in them ; and, accordingly, we hear sometimes of increased resistance to the venous blood as it approaches the heart, because it is flowing towards the apex of the cone, and of the diminished resistance to the arterial blood because it is flowing towards the base of the cone,* as if the circulation were carried on through a pair of *bonâ fide* cones united at their bases. It requires but a moment's reflection to become convinced that the resistance from friction, from the contractile power of the coats of the vessels and from the pressure of surrounding parts will be increased, just in proportion as we approach the extremities of the circulation. Hence, in the arterial system care has been always taken that the vessels should be carried along, where they will be pro-

* See the reasoning of Dr Carson on this subject, p. 44 et seq. of his Inquiry, &c.

tected as much as possible from the pressure of surrounding parts and from external agents; that their coats should be firm and elastic, so as to resist this pressure, and thus save by a favourable mechanical structure the power which would be otherwise expended in distending them. This is all so arranged, that the blood may be conveyed with as little expense of force as possible to the extremities of the system where the principal resistance exists, and where, as we know from wounds, it very soon loses that momentum which it possesses in the large branches. Here the chief labour of the circulation is at the greatest distance from the agent of impulse. But, in the venous system it is precisely the reverse. The principal resistance is very near the chief agents of impulse; and when the blood has made its way into the trunks of the veins, the resistance with which it has to meet is nothing compared with that which it has already overcome.

In inquiring into the agency by which the motion of the blood in the veins is maintained, this circumstance is to be particularly borne in mind. The momentum of the blood in the veins at any one place has been compared with that of the blood in the arteries at the same place; in the bend of the arm for instance; and the former has been found so manifestly inferior to the latter, that the conclusion has been drawn, that the power which the venous blood there possessed was not sufficient to carry it on to the heart.* Nothing can be more illogical than this conclusion. The arterial blood in that place has still the greater part of its resistance to overcome, and the venous blood has already passed the most laborious part of its course. The momentum of the one

* 'The ingenious and accurate Dr Hales, even, having in the course of his valuable experiments to ascertain the force of the blood, found that the momentum of this fluid issuing out of a divided vein, bore no proportion to that of the stream from its corresponding artery, (while considering the quantity of fluid in motion, and the velocity with which, in the living body, it must flow, in order to return a sufficient supply to the heart in the time required, the momentum of the stream from the vein ought to have been nearly equal to that of the artery) concluded hastily, that the motion of the blood was not governed by those laws to which the motion of other fluids was subjected.'—*Carson's Inquiry*, p. 78.

need not be nearly so great as that of the other, in order that each may complete its destined circulation.

These considerations afford the best explanation of a phenomenon, which has been often regarded as difficult to be accounted for. We state the difficulty in the words of Dr Carson. ' It must appear to every one, who has considered the circulation of the blood with any share of attention, extremely unaccountable that the blood should flow with continued impetuosity from a divided artery, while the stream from the accompanying vein, in the same situation, is gentle and easily subdued ; for, considering that the quantity of blood which, in the sound state of these vessels, passes through the vein, must be equal to that which in the same time passes through the artery, and that the fountain from which each is supplied is the same, the venous stream ought to be equally strong with the arterial.' p. 152. Now, besides the difference between the texture and structure of the veins and arteries, which would tend in some measure to produce this effect, a sufficient cause for this phenomenon is found in the great resistance which is constantly opposed from the causes mentioned to the course of the arterial blood, a resistance which makes it easier for it to rush in a constant stream from the opening, than to make its way through the innumerable ramifications towards which it is passing. In the veins, the simple falling together of the parts around the orifice, is sufficient to check the feeble tendency which the blood has to escape from the vessel ; and it is thus feeble, because the resistance is so small to its passage towards the heart.

Here, however, arises a point which may require a moment's consideration. It may not readily appear, that in all respects the difficulties which oppose the passage of the blood through the vein are so small as has been represented. Among the circumstances which appear most obvious as opposing the passage of the blood through the veins which are near the heart, by the *vis à tergo*, we may enumerate the want of fullness which is so apparent in the superficial veins. If the column of blood which is moving towards the heart be supported from below in the veins which ascend, it would

seem that their cavity must be distended by the weight of the column which is thus raised, and that consequently the venous system must be distended to its utmost capacity at all times.   Now, as is perfectly familiar to all, the veins in the arm, for instance, do not always contain the same quantity of blood ; they are not always distended to the utmost extent which their coats will bear.   This, however, is readily accounted for from what is known of the contractility of the venous texture, which is capable of varying the caliber of a vein to a great extent, and capable in its state of contraction of resisting the weight of any column which it is likely to sustain.   It should be also observed, that the tendency of the parts surrounding the vein is to support it and aid it in accommodating itself to the quantity of blood which the veins at any time receive from the capillaries.   Hence the veins may be always full, although they are not always equally distended, and do not contain always the same quantity of blood.   The power of resisting the pressure of the column of blood, and of resisting any extending cause which is given to the veins from these two sources, is shown by the jet of blood in venesection, which, while it measures the power of the capillaries, also measures the contractile power of the coats of the vein, supported and assisted by that of the surrounding parts.

These are the only views which will explain the phenomena of the venous circulation, particularly its inequality in different parts of the body ; the congestions which take place so frequently in the venous system, the motion of the blood through the system of the venæ portarum and in the fœtus, and its motion in many of the lower animals.   So far as atmospheric pressure is concerned, it cannot be regarded, even upon the most favourable view of the theory of Dr Barry, as having any influence upon the motion of the blood beyond that of a subordinate agent, like muscular motion, the pulsation of the arteries, &c. to which, as it seems to us, by far too much influence in the circulation has been commonly attributed.

We have room but for a few remarks upon that part of the work of Dr Barry, which relates to the subject of ab-

sorption.   This essay has two distinct objects ; the first, to
confirm the author's theory of absorption, announced with so
much confidence in the preceding treatise of this volume, p.
37 ; the second, to give an account of the success which at-
tended his experiments in preventing the absorption of poi-
sons, by means of cupping glasses.

If what has been said of the influence of atmospheric pres-
sure upon the motion of the blood in the veins be well
founded, it were unnecessary to say any thing further with
regard to this theory of absorption, since it must stand or fall
with Dr Barry's theory of the venous circulation.   All the
objections urged against that have double weight, as applied
to this.   Absorption could not take place in this manner,
unless all the vessels in the body, from the largest to the
most minute, were tubes formed of resisting and incompres-
sible materials.   This theory takes away all that power of
selection, and of a varied amount of action in different parts of
the same texture, which we know belongs to the absorbents.
One among the many consequences which ought to flow from
it would be, that absorption should commence at the super-
ficies of the body, and gradually destroy it to its very centre.

There seems to be no reasonable doubt whatever of the
great efficacy of the treatment which is proposed for poisoned
wounds ; we cheerfully concede to Dr Barry the credit of
reviving and improving it ; and of devising a great number
of instructive and interesting experiments with regard to it.
It is no more than just to our author, to quote his own words,
in giving an account of the conclusions to which his experi-
ments have led him.

' *Conclusions.*   From these experiments, and from the uniformity
of their results, we may consider the following facts as proved :—

' *First.*—That neither sound nor wounded parts of the surface of
a living animal can absorb when placed under a vacuum.

Second.—That the application of the vacuum by means of a
piston-cupping-glass placed over the points of contact of the ab-
sorbing surface, and the poison which is in the act of being ab-
sorbed, arrests or mitigates the symptoms caused by the poison.

' *Third.*—That the application of a cupping-glass for half an hour
deprives the vessels of the part over which it had been applied of

their absorbing faculty, during the hour or two immediately suc-
ceeding the removal of the glass.

'*Fourth.*—That the pressure of the air forces into the vacuum,
even through the skin, a portion of the matter introduced into the
cellular tissue by injection; that is, if the skin of the animal be not
too dense, as in the dog.

'From these facts we again arrive at the conclusions already
established by the experiments, detailed in Part I., viz.,—

'1st. That *the taking up* of matter from the surface by the san-
guiferous and lymphatic veins, and the progression towards the
heart of the contents of these vessels, are placed under the influ-
ence of atmospheric pressure, in all animals possessing thoracic
cavities, and exercising over them the power of alternate contrac-
tion and dilatation around that point to which the centripetal cur-
rent of their circulation is directed.

'2d. That, as the veins and lymphatics communicate with the
thoracic cavities nearly in the same manner, the cardiac ends of
both must be exempt from atmospheric pressure when the thorax
is expanded, and therefore the pressure on the surface and extre-
mities of these vessels being unresisted at this moment, except by
gravitation, must not only press their contents upwards, but also
force matter from abroad into their open mouths, or porous sides,
when stript of their more dense coverings.

'3rd. That as the height of the column of lymph exceeds that
of the column of blood in the lower cava, by the distance from the
lower point of the right auricle to the upper part of the subclavian
vein in man, and as the course of the lymph is more tortuous and
indirect (from passing through glands) than the course of the
venous blood; it follows, that the velocity of the transport of mat-
ter from the surface to the centre, must be less in the lymphatic,
than the sanguiferous veins, and that the comparative quantity
transported by the two sets of vessels must be influenced by the
circumstances already noted, and by the relative capacity of the
vessels themselves. The difference in the specific gravities of
blood and lymph should, perhaps, be also taken into calculation.

'4th. That as *imbibition, transudation, or passive soaking* of a part
in a liquid may take place *in vacuo*, neither can be the agent which
induces or compels matter deposited on the surface to penetrate
into the cavities of the veins; for although the cupping-glass may
arrest the current of the circulation in the smaller vessels during
the period of its application, and even for some time after its re-

moval, yet if imbibition could force the poison, which had been lying in the wound for hours, into their tubes, the washing of the part after taking off the glass would not save the animal from the effects of a substance which with the simple contact of the atmosphere would have killed him in a few minutes.' pp. 134—37.

We understand Dr Barry to intimate, that he regards this effect of cupping-glasses as a proof of his theory of absorption. That is, that since taking off the pressure of the atmosphere prevents absorption, its presence must have been the cause of absorption. This is about as logical reasoning as it would be to argue, because taking off the pressure of the atmosphere from a part of the surface of a liquid, causes it to rise at that part ; that atmospheric pressure is, therefore, the cause which keeps liquids down upon the surface of the earth, and prevents the sea from rising into the air.

In fact nothing can be more loose and vague than the manner in which Dr Barry speaks of atmospheric pressure. He seems to have no accurate knowledge of its nature, of its amount, or more particularly of the circumstances under which it becomes operative, as the cause of phenomena. We refer to a few instances to illustrate the vagueness of expression to which we allude.

' I had long remarked in every thing I heard or read on the circulation of the blood, that the pressure of the atmosphere was either entirely left out in the enumeration of its causes, or considered as merely a secondary agent. This appeared to me the more extraordinary, *from the effects of pressure being so striking, when acting upon liquids moving in tubes.*' p. 5.

He speaks, p. 7, of the heart as being ' protected from all direct atmospheric pressure.' Much as a person is protected from atmospheric pressure by being in a common room.

The whole of his doctrine, with respect to the pulmonary venous circulation, affords another illustration.

' to show that the two paramount laws of nature, gravitation and atmospheric pressure, are equally influential with regard to animated as to inert matter, &c.

' Two of the most powerful and most general agents of nature are gravitation and pressure. Their influence is never for a mo-

ment suspended either with regard to living or inert matter : we can conceive of no state of organization capable of maintaining an existence independent of their power.' p. 94.

We have but a few words to say, in concluding, with regard to experiments on living animals. We would not be understood to deny, that they are capable of being made subservient to the acquisition of physiological knowledge, that in some hands they have been so ; and that, when they are likely to be so, they are perfectly justifiable. Yet we think that any one who has impartially considered the history of experimental physiology, will admit that the amount of real and certain knowledge which has been obtained in this way is but small when compared with the immense number of experiments which have been made, and that confusion has been thrown by them on some subjects. Experiments are resorted to, as decisive tests of principles and opinions—the touchstone of truth. But experiments are made the subjects of dispute, as well as opinions ; and we have experiment against experiment, just as we have argument against argument. The modern cry is for facts. Give us facts ! The rage for facts is as extravagant and indiscriminate as that for theories once was, though, perhaps, hardly so prejudicial. We forget in our enthusiasm for the new philosophy that facts require evidence, and evidence of a very high kind, to establish them as such. It is not every dexterous dissecter who can dissect an animal alive with great adroitness, that is a careful observer or an accurate reporter of what he sees.

We would remark, in connexion with the theory of Dr Barry, that it wears an imposing air, because it purports to be supported by experiment, and he, in some sort, inclines to sneer at the work of Dr Carson, who has recourse to no such aid. No doubt this circumstance has induced many to give their assent to his views. But, with perhaps a single exception, his experiments add no force to his theory. It would be just as good without them. Every thing which they really do prove would necessarily take place according to the well known and long established laws of atmospheric pressure, and are not at all better proved by his experiments than they would have been without them.

It may appear, perhaps, to have been unnecessary to devote so large a portion of our pages to the consideration of a hypothesis, which has so little to support it, and which is indeed so directly opposed to the commonly received laws of physics. And this would doubtless be the case, had it not the sanction and support of such authorities, as are almost always sufficient to carry with them the multitude who do not examine for themselves, against truth and reason. In addition to what has been supposed the favourable opinion of the French men of science, we quote below a few passages from English journals, as indicating the opinion which some physiologists, even of that country, still entertain of the value of Dr Barry's labours.*

* The Edinburgh Medical and Surgical Journal, a periodical, which ranks decidedly as the first in Great Britain, uses the following language :—

'In all respects the memoir is a perfect model, both of precision of thought and accuracy of reasoning, to which, perhaps, nothing can be compared since the neat and classical Essay of Goodwin, on the connexion of life with respiration.'

'Upon the whole, the researches of Dr Barry must be regarded as by far the most interesting, the most important, and, we may add, the most accurate that have been performed for a long series of years for the purpose of extending the boundaries of physiological knowledge. They throw a very considerable degree of light on some parts of the venous circulation and absorption, which have at all times perplexed physicians of the first eminence and of the greatest acuteness. We may also add, that they entitle their author to a very high rank among the ablest physiologists of the present day.' No. 90, pp. 212 and 214.

'We are much mistaken if they (the experiments of Dr Barry) will not more than equal any expectations they have formed. They are, in our mind, by far the most important and philosophical experiments that have been made for the last twenty years; and while they explain, most satisfactorily, some of the obscurest phenomena of venous circulation, they add a most valuable means to the treatment of poisoned wounds.'

'these researches, than which no contributions more important have for many years been made to physiology.'—*Lond. Med. Repos. and Rev.* No. 15, pp. 185, 192.

' Dr Barry has done honour to himself and to his country, by a suite of ingenious experiments on the functions of circulation and absorption.'—*Med. Chir. Review*, No. 26, p. 313.

The writer last quoted, however, does not give his full belief to the theory of Dr Barry.

Since the above article was in type, we have received the June number of the London Medical and Physical Journal, containing the review of a pamphlet which passes some very severe strictures on Dr Barry's work and opinions. In the

XI.

Two Introductory Lectures on Materia Medica, delivered at the Opening of the Course, and at the Commencement of the Vegetable Materia Medica, at Mr Grainger's Theatre, and at the New Medical School, Little Dean Street, Soho. By FRANCIS BOOTT, M.D. London. 1827. pp. 70.

THESE Lectures, printed at the request of the students to whom they were delivered, form part of a course, at a new medical institution in London. The school for which they were prepared is the same which boasts the talents and labours of Dr Armstrong, a physician no less distinguished by the value and soundness of his various medical writings, than by the rapidity with which he has risen to the highest professional eminence. Dr Boott is an American, within a few years established in London. Not only the specimen of talent before us, but likewise our previous knowledge of the excellent character, the scrupulous fidelity, and unwearied industry of the author, lead us to prognosticate ample success, as the reward of his abilities and exertions.

In the first of these lectures, Dr Boott has given a cursory view of the history and discoveries in the science of materia medica. At the present day it cannot escape the observation of every physician, that an accumulation of medicinal agents and their compounds, has taken place, far beyond the necessities which are felt in actual practice. There is no doubt that the management of diseases might be as well conducted with a half, and possibly with a twentieth part of the remedies which our books contain, as by the employment of the whole number. It is nevertheless necessary, that a well educated physician should know the properties of all active substances which are, or have been, in extensive use, that he may understand the intentions of different medical writers and collateral practitioners.

same review is given a quotation from a work by Dr Arnott, in which the objections to the theory of Dr Barry are urged, both generally and in detail, in a manner very similar to that of the foregoing review.

We may justly consider simplicity of practice as one of the great improvements of modern medicine. This is displayed, not merely in the diminished variety of drugs employed, but likewise in a juster estimate of the power and applicability of medicines generally. If we mistake not, a better discrimination exists now than formerly between diseases, the career of which is uncontrollable, and those in which it is otherwise; between symptoms upon which we must wait, and those with which we may interfere; between complaints which require only judicious external management, and those which call for internal remedies. When we consider what floods of medicines have been formerly wasted upon consumption and dyspepsia, upon hooping cough and continued fever, we must derive satisfaction in agreeing with the author of the pamphlet before us, that 'simpler views are now taken of diseases; that a humbler faith is felt in the powers of art over many of them; and that the time is fast approaching, when the pernicious system of empirically administering drugs, which can have no other effect than that of wasting the failing powers of life and adding to the evils of disease, will be abolished from the practice of physicians.'

In the second lecture, Dr Boott has given an interesting view of the connexion between the external forms of plants and their medicinal properties. This subject, although abounding in anomalies and exceptions, nevertheless furnishes some general views of striking interest to the medical botanist. And, in grouping plants into natural families, there are many instances in which peculiar sensible and medicinal qualities might be added to the characteristics of the assemblage, with almost as much certainty as those of external form.

The usefulness and importance of the study of botany is urged upon the medical student by Dr Boott, in a strain of eloquence evidently proceeding from the heart.

'I wish I could excite in your minds a consciousness of the extreme facility of the rudiments of this most beautiful and enchanting of all sciences, because I should remove the apprehension you may feel of its requiring laborious study; and you would then perceive that its pursuit is compatible with the active duties of your

profession. The science, in its widest extent, is one of the most elaborate, and requires patient investigation and profound observation ; for it embraces not only the external forms and structure of plants, but their physiology, and the functions of their various parts : and some of the most highly gifted men of all ages have devoted their great talents to its pursuit. No name among the many of these great men will have such influence with you as that of Haller, whose fame as a botanist is only secondary to his celebrity as an anatomist and physiologist : and it is only necessary to refer to his letters to Linnæus, to see how much his heart and mind were interested in his botanical pursuits. In one of them he says, " I have not done much in botany of late, except my journeys, and the examination of characters in my garden. Anatomy is my chief occupation combined with physiology. To these I am obliged to devote the greater part of the year. Your happier fate spares you such interruption to your pursuits. But if ever I can return again to my own country, I shall seek no other pleasure than botany. To that, in the investigation of what Switzerland produces, 1 hope to dedicate the remainder of my life."— in another letter, after wishing Linnæus health for his botanical pursuits, he says, " My studies and engagements of a different nature draw me unavoidably aside, but my inclination always leads me to the charms of Flora. To botany I wish to devote my leisure, my old age, and my fortune."

It is remarkable, that many of the most active physicians have been the most distinguished botanists ; indeed Cuvier in his *Eloge* upon the Sciences, ascribes their origin and progress in the earlier ages to the investigations of medical men. The necessity of their cultivation for the perfection of physic is still as imperative upon us as upon those who first called them into being ; for we derive our means for the cure and prevention of diseases from the three kingdoms of nature : and if I may be allowed to speak from my own partial and most imperfect experience of the advantages of the knowledge of botany, I would say,—there is no study more instructive to the physician than that of plants, and certainly none which brings with it more delightful consolations under the trials and distresses that are so peculiar to the practice of Medicine. I would not, however, exalt botany to the prejudice of the other sciences ; for they each form a link in the great chain of knowledge,

and mutually depend upon each other. But when we look abroad
through nature, and see the profusion, the variety, the beauty, and
the utility of the vegetable world,—can we permit ourselves, as
rational beings, to exist and allow the means of observation and in-
struction which we possess, to lie unimproved through life, by
passing with indifference those lavish materials for knowledge and
happiness, furnished by the vegetable creation? Can we be indif-
ferent to the source of our most essential comforts, and of many of
the most interesting productions of nature, which furnish us with
the instruments of our knowledge, and the materials of our useful-
ness?' pp. 61—63.

The moral and practical advantages of this study are judi-
ciously urged through a number of pages, of which the fol-
lowing is the conclusion :—

'But there is a higher inducement to the pursuit of knowledge
than the mere physical advantages that may ensue from it. It is
that of holding an enlarged sympathy with the wants, the pursuits,
and the enjoyments of mankind in all regions, and in familiarizing
yourselves with those productions of nature which are the sources
of happiness to millions of human beings. It is also that of culti-
vating the talents bestowed upon you for your own good and for
the good of others, and of acquiring a taste for the beauties of na-
ture, which sheds a charm round the genius and the affections of
the most distinguished men.

'There is a mysterious communion between the mind and heart
of man and the sights and sounds of natural objects. A voice,
descending from Heaven and borne upon the breath of morn, is
heard along the enamelled mead or through the mazes of the dark
forest, which penetrates to the sources of our thoughts and affec-
tions, and which kindles a spirit of devotion to light and warm our
own bosoms, to be thence reflected upon all around us. Listen to
its instructions in the delightful solitude of your occasionally se-
cluded hours, far from the contaminating influence of worldly am-
bition ; and you will return to society with feelings better adapted
to the discharge of your duties there, and in the possession of a
mean for happiness which no adversity can rob you of, and with a
refinement of mind which no prosperity can vitiate.' pp. 69, 70.

MISCELLANEOUS ARTICLES, ORIGINAL AND SELECTED.

Section I.—Original Papers.

XI.—*Dissertation on Inflammation of the Periosteum, both Acute and Chronic, which obtained the Boylston Premium for* 1827. By Usher Parsons, M.D.

The remote situation of the periosteum, and the silence of most elementary writers respecting its diseases, lead the student of medicine to think it an uninteresting subject for investigation, and one of the most sterile kind that could be proposed for a dissertation. A due consideration, however, of the functions and properties of this membrane ; of its connexions and relations with the bones, which are often diseased and wounded ; of the reciprocal influence which the diseases of both textures have upon each other ; and, lastly, the fact well known to practitioners, that both these textures frequently participate in secondary venereal affections ;— these considerations, I say, present the subject in an interesting point of view, and as one that, from the very circumstance of its being so casually and briefly noticed by authors, is the more deserving of particular investigation.

In commencing this task, our attention is first drawn to the structure and nature of the periosteum. It is a fibrous membrane, which, as its name imports, is applied to the surface of the bones. It covers all the bones of the body, even the ossicula of the ear. Some are covered by two membranes, as the flat bones of the head, where the dura mater partakes of the nature of periosteum. It pervades the whole surface of all the bones, their apophyses, eminences and cavities, with the exception of the articulating surfaces and crowns of the teeth. The ancients described it as extend-

ing from one bone to another over the articulations, and thus forming a continuous sac for the whole skeleton ; and, indeed, so intermixed are its fibres with those of the capsular ligaments, that there seems to be some foundation for this opinion. It sustains direct connexions with the greater part of the fibrous system, and is considered by Bichat as the centre of this system. It furnishes points of support to the broad fascias that surround the muscles, and receives the tendons which are more or less expanded at their insertion. It is imperceptibly lost in the ligaments, and blended, in the different parts of the body, with sheaths and fibrous capsules. A large number of prolongations establish intimate connexions between the periosteum and dura mater, both through foramina and through the sutures.

The periosteum has not the shining whiteness of the dura mater, but is of a white greyish colour throughout its whole extent. Its adhesion to the bone is greatly strengthened by age, to enable it to endure the greater pulling and wrenching, by muscular action, to which it is subjected. Of its two surfaces, one is contiguous and adherent to the bone, the other is united to the surrounding parts by a cellular tissue. The bond of union between the periosteum and bone, is, by blood vessels passing from one to the other, and by very delicate fibrous sheaths transmitted from the periosteum as an envelope to the blood vessels. These prolongations are numerous in those parts of the bones where the cellular tissue prevails, as in the vertebræ and heads of the cylindrical bones. The periosteum furnishes also a sheath, which accompanies the nutrient artery of the long bones, and which is probably prolonged with a diminution of its thickness, throughout its ramifications. On the outside, the periosteum receives the tendons, ligaments, and aponeuroses, and is separated from the muscles by cellular substance.

The periosteum is composed, as before observed, of very compact unyielding fibres, arranged generally in the direction of the bone which it covers. ' Examinations of thickened periosteum in cases of elephantiasis prove,' says Bichat, ' that these fibres placed upon each other are of different

lengths, the superficial ones being longest, and those con-
tiguous to the bone running but a short distance.'

The blood of the periosteum is derived from the surround-
ing parts.   Its vessels may be seen in the minute injection
of young subjects.   They hold such an intimate relation to
those of the bone, that they will be better understood, if we
describe the vessels of both textures together.   They con-
sist then of three kinds ; one, derived from the periosteum,
being a continuation of those vessels sent to the membrane
from the contiguous parts, and which are distributed to the
compact texture of the bones ; another set of vessels is sent to
the heads of the cylindrical bones that have cells ; a third kind,
which is transmitted to the marrow of the long bones, through
a foramen near the middle of their shaft.   ' The two first
kinds going to the substance of the bone, appear to be es-
pecially destined,' says Bichat, ' to deposite the phosphate
of lime.'   The third passes through the foramen above
mentioned by a single vessel to the marrow, where it divides
into two branches, which proceed in opposite directions to-
wards the ends of the bones, where they ramify *ad infinitum*
in the medullary organ, and their last branches are lost in
the commencing cellular structure of the heads of the bones ;
or there meet and anastomose with the vessels that are sent
to the cells.   By this communication of the two sets of ves-
sels, they mutually assist in performing each other's office.
Bichat found, in a case where the nutritient artery going to
the marrow, had been obstructed and obliterated at its en-
trance into the foramen ; that its two great branches within
the medullary cavity were, notwithstanding, completely filled
with injection, which must have past to them from the anas-
tomosing branches of the cells.

Although lymphatics are not discoverable in the perios-
teum, no doubt can be entertained of their existence.   The
same may be said of their nerves, their existence being
proved by pathological observations.

In respect to the *properties* of the periosteum, it is admit-
ted to possess animal sensibility, but peculiarly modified.
Those stimulants that put this property in action in other

textures, as mechanical, chemical, &c. cannot develop it here, unless it is in an inflamed state. ' Separated, in fact, by its deep position from every external excitement which can act upon it chemically or mechanically, it has no need like the cutaneous system, for example, of a sensibility which would transmit the impression of such agents.'

The vital activity is much greater in the periosteum, than in the bones or cartilages ; this is proved by the greater rapidity of its cicatrization. In laying bare fractures made for the purpose in animals, it has constantly been observed, that the fleshy granulations coming from the periosteum and medullary organ, are all formed, whilst those furnished by the bone itself have hardly commenced. Still, however, there is a remarkable slowness in the vital activity of this system. We see it in mortified limbs, where gangrene, like the inflammation that precedes it, makes rapid progress in the cellular texture, muscles, &c. while the periosteum still remains sound.

The periosteum, as well as other parts of the fibrous system, is remarkable in its not contributing to the formation of pus, the matter which sometimes collects from inflammation being a gummy exudation.

Like all the fibrous system, the periosteum has very little extensibility ; yet it is not altogether void of this property. It yields when tumours form on the bone, or when matter is effused under it, and is enlarged in rickets. It possesses a cellular substance, which sometimes becomes swollen and distended, and conceals the fibre which is the base of the periosteum.

Respecting the *functions* of the periosteum, it defends the bones which it covers from impressions of the moveable parts that surround it, and probably also moulds the surface of the bones, since this becomes changed and deprived of its smoothness, whenever the membrane is separated from it and prevented from again reuniting, as will appear in experiments hereafter to be mentioned. Besides giving shape and protection to the bones, this membrane sustains the circulation in the exterior part of them, and gives passage to the

nutritient arteries going to the medullary organ of cylindri-
cal bones, and to the diploe of such as are tabular.

PATHOLOGICAL EXPERIMENTS AND OBSERVATIONS.

It was formerly believed, that the periosteum, when rais-
ed from the bone, could not reunite and resume its functions,
and that necrosis, more or less extensive, would necessarily
ensue.   Tenon first proved that the opinion was erroneous,
and the same is confirmed by the experiments of many phy-
siologists, among the most recent of whom are the celebrated
anatomists, Beclard of Paris, and Cruveilhier of Montpelier.
Their numerous and ingenious experiments prove, that the
periosteum supplies the outer surface of the bone with osse-
ous matter, yet when cleaved from the bone, it may be
readily reunited without the intervention of exfoliation or
necrosis, even where the bone itself has been wounded, pro-
vided the subject be young and healthy.

To remove all doubt in respect to the power of the peri-
osteum to reunite to the bone, and resume its functions after
having been separated, Mr Cruveilhier detached it from the
tibia, in a great number of hares, to two-thirds at least of the
circumference and extent of the bone.   After ten, twenty,
thirty, and sixty days, he found the periosteum reunited, and
scarcely any perceptible difference between the surface of
the bone and that of the opposite side, excepting a slight in-
crease in thickness.   A hare, upon which he separated the
periosteum from the whole circumference of the bone, died
in consequence of the injury two months after.   The exte-
rior wound was cicatrized, but the denuded bone was sur-
rounded two-thirds of its circumference with a copious depo-
sition of matter of a caseous appearance.   The anterior face
of the bone was covered by a thick bed of new formation
which shot forth irregular sprouts, two of which were more
than an inch long, stretching backward like wings.   These
experiments prove, that the periosteum furnishes the ex-
ternal layers of bone.   That it secretes and deposites osse-
ous matter on its internal face, when detached from the

bone, is proved by the following experiments :—Upon a very young hare, Mr Cruveilhier separated the periosteum the whole length and circumference of the bone, and interposed slips or lamina of brass between it and the membrane. On killing the animal one month after, the tibia presented considerable diminution of volume at the place of the brass rings ; a slight effort served to break the bone at this place ; a cartilaginous and osseous bed was formed over the brass, and the periosteum was reunited throughout the rest of the length of the bone.   Upon another hare, Mr Cruveilhier passed between the tibia and periosteum a layer of sheet lead, half an inch broad, fastening it to the bone by waxed threads ; and two months after, an osseous swelling of considerable magnitude was formed around the foreign body.

' Every time,' says Mr Cruveilhier, ' that I have seen the periosteum in contact with pus, I have never known ossification to take place; and surgeons have long since observed, that pus or blood interposed would effectually prevent a reunion of detached periosteum, so as to prevent exfoliation.' How is this phenomenon to be explained ? I think it may be done by considering the nature of the process of ossification. Thus, when the periosteum is separated from a dead bone, it retains its attachment to the heads or articulating ends of the bone.   These swell and soften, and continue to retain between them the sequestrum or mortified bone.   The periosteum thus detached, swells and secretes from its internal face a small quantity of reddened fluid, at first very thin, like moisture bedewing the membrane.   Its quantity and consistence gradually increase till that which was a limpid fluid becomes a jelly, which thickens daily and passes into a state of cartilage.   In this, osseous fibres are deposited, and finally the fluid and cartilaginous substance disappear, leaving the new bone perfectly formed.   Now, while pus or blood are lodged between the bone and detached periosteum, the very thin fluid secreted from the latter to form cartilage and bone mixes with the blood or pus, instead of congealing and ossifying, as it does where, in place of such fluids, flakes of bone or metallic substances are interposed.

The foregoing experiments establish satisfactorily the nature of the office of the periosteum in the cure of superficial necrosis.   No one can conclude otherwise than that the new bone is the product of this membrane.   Dupuytren has, however, ascertained that where a small portion of the periosteum is excised from the bone, and the integuments are carefully brought in contact with the denuded part, that even muscle will adhere to the bone and fulfil the office of the periosteum in furnishing osseous matter.   Still, however, the opinion of Wiedman holds good in the main, viz. that in order for good bone to form, the periosteum and medullary membrane concerned in the nutrition of the original bone must have been spared from destruction ; for, in cases where the tube of a cylindrical bone has suffered necrosis throughout, the bone is never after reproduced, if the periosteum has also by inflammation or other causes been destroyed.

The periosteum limits its work of furnishing osseous matter of cylindrical bones to their surface, at the same time it gives passage to the nutrient artery going to the medullary organ, and numerous vessels to the cells of the bones.   The first mentioned set of vessels going to the surface of the bone can, however, build up its whole shaft, provided the dead bone in the centre be extracted ; and from these same vessels, probably aided by the vessels in the heads of the bones, there will ultimately be formed a new medullary organ.   When, however, the outside of the cylindrical bone is necrosised, and the supervening inflammation is prevented from extending to the medullary organ to destroy it, this organ by means of the blood sent to it through the nutrient artery, will secrete new bone, and supply it to the internal layers or central portion of the bone ; or, even should this artery be destroyed with the external layer of bone, the branches within may derive blood from the cells, as the case mentioned by Bichat of obstructed nutrient artery proves, and the central portion may, in this way, receive a supply of nutriment from this source and be preserved.   So that, while one pathologist shall present a cylindrical bone inclosing a dead one, in proof that the periosteum is the organ of

ossification in necrosis, another may produce a living bone inclosed within a dead one, to prove that the medullary membrane is the organ of ossification.

Various opinions have been entertained in respect to the share of labour performed by the periosteum in consolidating fractures. M. Beclard has bestowed such attention on this subject, that the point in question seems now to be well settled. He has observed, that ' when a bone has met with a simple fracture, it may easily be perceived many days after, that the surrounding integuments are swollen ; this first phenomenon,' he says, ' is already accompanied with some degree of strength in the part fractured.' After some days the tumefaction diminishes, and is concentrated almost immediately around the place of fracture ; still later, the tumour which surrounds the bone becomes hard, solid, and, finally, after more than three months, the tumour has nearly subsided, leaving the bone firmly united. If the fracture be examined during the resolution of the tumour of the soft parts, when it hardens and applies itself immediately upon the bone, there will be clearly seen a kind of belt or ferule of bone formed by the ossified periosteum ; the thickness and consistence of which goes on diminishing towards the point of the fracture, to within an inch above and below it. At this time, the surfaces of the fractured ends have scarcely undergone any change, but soon they become softened, and the softened texture fills up all the intervening space. Eighty or one hundred days after the fracture of a tibia or femur, the periosteum has recovered its organization, the medullary canal has formed itself, and the cicatrix of the bone is completed. Thus, after these researches, it is evident that when callus forms, the periosteum swells in the place of the fracture, becoming in some degree a cellular and vascular net-work, and is afterwards transformed into a bony hoop or belt, which preserves the two fragments in contact during the progress of ossification ; and, finally, when the cicatrix of the bone is completed, the periosteum recovers its original texture and natural organization. Mr Cruveilhier, whose authority was before quoted, repeated the experiments of Beclard, and obtained the same results.

Mr Bell, in his usually positive manner, asserts, that 'callus may be produced *equally well* from any part of the osseous system; from its periosteum, from its medulla, or from the substance of the bone itself;' and in proof of it, states, that 'in fractures of the patella or kneepan, where there are no medullary vessels, the pieces are united by a callus, which is secreted from the vessels of the bone itself.' Before acceding to this doctrine, it may be well to examine the bone and ascertain if, as he states, it can of itself repair fractures without the aid of the covering and lining membranes. The instance he cites is not so well adapted to his theory, as some others; for the patella, though destitute of medullary vessels, has a periosteum, and is plentifully supplied with blood from it. A case more in point is, where the head of the os femoris within the capsular ligament, which is destitute of both a medullary and of a periosteal membrane, is fractured transversely; and are such fractures often consolidated? Sir Astley Cooper thinks they never are.

It is true a union took place in this part after a longitudinal fracture, made by Sir Astley, on the thigh bone of a hare, where the socket acted as a compress and support, and preserved them in exact opposition, so that the divided vessels in the bone may have had their communication re-established. But here, simply a bony union or adhesion was all that took place, a process very different from that of forming callus, in the manner and to the extent that is done by the membranes of the bone. Sir Astley, in his attempt to prove that opposition is necessary to effect the formation of callus to any extent, relates cases which show, that ossification by the bone alone, is very limited, if it take place at all. Where the tibia alone had been fractured, and the ends sawed off, were prevented from coming in contact by the fibula, a consolidation never took place. 'Again,' he says, 'I sawed out one seven-eighth of an inch from the radius of a rabit, and the ends of the bones never united to each other, but only to the ulna. In another rabit I took out one-ninth of an inch, with the same result. The failure of ossification, in this case, was evidently attributable to the destruction of both

membranes by the operation. Had these remained entire, as in simple fracture, or had the medullary membrane only been broken, as when the fractured ends are thrust by each other, or are separated from each other more than half an inch, callus, even then, might have formed, and filled up the intervening space.

'Desirous of observing the comparative agency of the periosteum, and the bone, in the formation of fractures, I fractured the radius and ulna of a hare, and with the aid of counter-extension, separated and confined asunder the fragments one-third of an inch. Callus formed and filled up the intervening space, and the limb was that measure longer than its fellow of the opposite side. Again, I fractured the radius of another rabbit, then dissected down carefully to the bone and raised the periosteum for quarter of an inch each way from the fracture, then applied a thin plate of silver round the ends half an inch wide, which served to keep the bones in exact apposition. I then healed the integuments by the first intention, keeping splints on the limb, in addition to the support it received from the belt and from the unbroken ulna. After fifty days I found the outside of the silver belt covered with cartilaginous and osseous matter, the broken ends were diminished in size and some change was induced at their junction, but no progress made towards consolidation. Again, I fractured transversely the radius of a hare, and interposed between the fractured ends a thin layer of silver, the diameter of which was equal to that of the bone, so as to project no further than the surface of the bone, the periosteum being cut through on one side only to receive the plate. The integuments were closed over and dressed, and after ninety days the bone was found united by a belt of callus surrounding the fracture, and which must have been furnished by the periosteum alone. These experiments fully established my opinion, that the membranes of the bones, particularly the periosteum, are the chief organs that form callus; and that the bone itself is not, as Mr Bell boldly asserts, equally concerned and active in the consolidation of fractures, as the membranes.'

The view here taken of the structure, properties, and functions of the periosteum, as also of its connexions with neighbouring parts, particularly with the bones, prepares the way for a clearer and more satisfactory examination of its diseases. We have seen, that, like the other textures, it possesses its own peculiar degree and modification of the vital properties ; that, in respect to the degree of their development and activity, it holds in common with the other fibrous textures, an intermediate rank between the' softer and more vascular textures, and the hard osseous substance. This consideration leads to a supposition which experience confirms, that its susceptibility to inflammatory action is of a corresponding intermediate grade ; all the phenomena of inflammation being developed with a rapidity and in a degree proportioned to that of the vital energy which this membrane, compared with other textures, possesses. This position is, however, true in respect only to simple and local inflammation ; for, when the inflammation is of a specific kind, take the venereal for an example, the susceptibility of parts is not proportioned to the degree of vital activity which they possess. There is a tendency of the disease to particular parts rather than to others, to the periosteum and bone rather than to the viscera of the large cavities, as we shall. have occasion to remark more particularly when treating of venereal inflammations.

If we refer to elementary treatises on simple inflammations of the common cellular substance, they will be found to be arranged by many writers according to the violence of their symptoms and modes of termination. It may not be amiss to consider periostosis under the same heads of division, as the analogies and points of. difference in the two kinds will elucidate their character, and facilitate our investigations. The terminations of common inflammation are in 1. Resolution ; 2. Ulceration ; 3. Suppuration ; 4. Gangrene ; 5. Adhesion ; and 6. In the growth of new parts ; and the processes which lead to these terminations are too well known to require a description.

Periosteal inflammation, as will hereafter be shown, may

terminate according to the first, second, fourth, fifth, and sixth mode. It rarely if ever ends in suppuration ; why it is so, says Bichat, I know not. Inflammations of the cartilaginous systems are also remarkable, in that they rarely or never terminate by suppuration. Formerly it was believed, that ulceration and suppuration were always coexistent ; subsequently, it was ascertained that the mucous membranes, particularly those of the lungs, might suppurate without becoming ulcerated ; since which, a purulent expectoration has ceased to be regarded as an indication of ulcers in the lungs. Still later, it has been ascertained, on the other hand, that ulceration may exist in some parts, as in the articular cartilages* and periosteum, without producing pus.

But, though inflammation fails of producing suppuration in the fibrous texture, it produces matter in place of it, that seems to be peculiar to this system. This is a gummy, glairy mucus, sometimes appearing in the form of ganglions on the tendons, sometimes round the capsular ligaments after chronic rheumatism, particularly over the olecranon, and often in the periosteum, in the form of small prominent tumours, in secondary venereal affections. These tumours have long attracted notice, and, on account of their contents, have in France received the name of gommè.

Inflammations of the periosteum must, however, be regarded as of minor importance in respect to their effects on the membrane itself. It is the bone with which it is so intimately connected by situation and attachment, and to which it serves as a parenchyma of nutrition, that claims our chief attention in all diseases of this membrane. Thus, ulceration, if extensive, or long continued, must extend itself from the periosteum to the bone, inducing caries or exfoliation ; and,

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* 'The ulceration of soft, vital parts, is usually,' says Brodie, 'so far as I know, always attended with a secretion of pus; but it is otherwise with the articular cartilages, in which suppuration seldom takes place, while the ulcer is small, and after the disease proceeds so far as to cause caries of the bones to a considerable extent, without matter being formed on the joint. This circumstance, he adds, is worthy of notice ; for it has long been established that suppuration may take place without ulceration ; and it appears, that, in this instance, ulceration may take place without suppuration.'

in wounds of this membrane, we are alarmed chiefly for the safety of the bone, and direct our attention in the treatment to its preservation. Even an exaltation of its functional action, as in the exuberant secretion of osseous matter in the form of tumour or node, effects a greater ultimate change in the bone than in itself. In short, the periosteum can hardly undergo any material change from disease, without affecting a still greater and more serious change in the bone.

These morbid changes, produced in the bone by periosteal inflammation, will be varied materially in their character by the nature, the degree of violence, and the extent of the inflammation. Thus, if the inflammation be circumscribed and of a chronic character, and affect the outer layer only of its fibres, and of so moderate grade as not to interrupt its functions in relation to the bone by changing or destroying its nourishing vessels, there will be produced that peculiar secretion of gummy matter before mentioned, that belongs to the fibrous texture. I do not know that inflammation of this membrane from local causes, can be continued a sufficient length of time of so uniform a grade as to produce this deposition of matter. Chronic rheumatism in the capsular ligaments often causes it ; but I know of one kind only, the syphilitic, that causes the fibres to secrete this kind of matter.

Again, if the whole thickness of the periosteum or of its circulating vessels be affected with a low degree of inflammation, which, instead of abridging its healthy function, shall exalt it, causing an exuberant deposition of osseous matter, it will produce a growth of new substance on the bone, in the form of nodes and exostoses. From the manner in which ossification commences, first by a thickening of the membrane, then a deposition of lymph, which becomes cartilaginous, forming a nidus for the deposition of bony matter, there are periods of time when such tumours might with propriety be termed cartilaginous. When, however, such tumours are perfectly organized and matured, they are even harder in their textures than the bones on which they rest.

Another instance where inflammation of the periosteum

is attended, like the last mentioned, with an increase of its functional office, and which serves a valuable purpose in the animal economy, is that which takes place in the formation of callus, and in the deposition of new bone in necrosis; subjects, that have already occupied so much of our attention.

Lastly, inflammation may run so high in the periosteum as to destroy it by ulceration or sphacelus ; and here, as in the other grades of periostosis, the bone is the more important organ implicated in the affection.

With these remarks on the nature and effects of periosteal, compared with other inflammations, and on their effects upon the bone, it is proper to observe, that an important distinction should be made between those cases which are constitutional, or originate in some internal disorder, and require constitutional remedies, and those which are purely local, and require to be treated accordingly ; in other words, between those that are *symptomatic* and those which are *idiopathic.* Another division of periostoses founded not so much on their extent, tendency, and mode of termination, is into *acute* and *chronic.* This division of periostoses is of early date, and is probably the best that can be made. It is best, because it accords with the usual divisions of other inflammations with which we are more familiar; it is best, because it lays the foundation for a more correct prognosis than any other ; and best, on the present occasion, as it accords with the question proposed for the dissertation. Availing myself of both divisions, I shall divide periostoses into *constitutional* and *local*, and subdivide each of these classes into *acute* and *chronic.*

Under constitutional periostosis may be enumerated the following kinds :—Rheumatic, arthritic, scrofulous, scorbutic, cancerous, and venereal. Of these, the last only will receive particular notice. In taking leave of the others, it may be briefly remarked of them, that they depend on an internal cause, which may in most cases be determined by the previous state of the constitution ; that the rheumatic kind is merely an extension of the inflammation from the other fibrous textures, particularly from the capsular ligament to the

periosteum, and produces a circumscribed thickening of the
membrane ; that gout will, in some rare cases, after produc-
ing chalky concretions about the capsular ligaments of the
extreme joints, affect also the neighbouring periosteum, and
produce a deposition of similar matter between it and the
bone ; and that scorbutic and scrofulous periostoses are of
rare occurrence, and are to be met with in such cases only
as are strongly marked with a previous constitutional affec-
tion.   Lastly, it may be remarked, that soft cancer or fungus
hæmatodes, which is considered by Sir Astley Cooper and
M. Beclard to be a fungous, and by others a lymphatic tu-
mour of the periosteum, though often excited by some injury,
are believed to be, in all cases, preceded by a diseased state
of the constitution, and that most of these constitutional pe-
riostoses may vary from acute. to chronic, and vice versa,
during the course of their progress.

We now proceed to the consideration of the last mention-
ed inflammation of the periosteum of a constitutional kind,
the venereal, which occurs more frequently than all others.
It is the consequence of a neglected or ill-treated syphilis,
and makes its appearance only after the usual symptoms of
syphilis have existed for a great length of time.   The time,
however, varies according to the situation and circumstances
of the patient.   Inflammation of the periosteum has been
known to show itself within four weeks after the first ap-
pearance of chancre ; at others, it has not appeared till after
a lapse of years, but ordinarily it shows itself between three
and twelve months.   It is the consequence of a general, deep-
rooted venereal taint of the system, aided, in some instances,
by misuse of mercury and by exposure to cold.   The disease
affects the periosteum and bones at a late period of the dis-
ease, partly because of the slower tendency of these textures
to become inflamed than exists in those parts in which the
affection first shows itself.   The forwardness of this mem-
brane or of the other textures to participate in the venereal
disease, is, however, by no means proportioned, as we have
already remarked, to the degree of vitality it possesses ; for,
as Mr Hunter observes, ' as far as our knowledge extends,

certain parts cannot be affected at all.   The brain, heart, stomach, liver, and several other organs, have never been known to be attacked by syphilis.'   'The first order of parts, or those which become affected in the early stage of the lues venerea, after the genitals have been diseased, are the skin, tonsils, nose, throat, inside of the mouth, and sometimes the tongue.'   'The second order of parts, or those which are affected at a later period, are the periosteum, fascia, and bones.'

These tumours, we have observed, are occasioned by syphilis with the misuse of mercury.   This may be by too liberal an exhibition, or by even a moderate quantity of the medicine, without due regard being paid to regimen.   According to the most extensive observations that have been made of late, it would appear that where mercury is not employed in the cure of the venereal disease, periostosis rarely occurs.   In the great number of cases treated without mercury by Dr Hennen, not a case was seen, in which the bones of the nose were affected : some cases of periostosis, and of pains and swelling of the bones of the cranium and extremities were met with ; but, except in two, he never remarked any nodes which could be regarded as *unequivocally syphilitic.*   On the whole, he adds, 'it appears tolerably certain that mercury, especially when employed unmercifully, and even when employed with moderation, and the patient exposes himself to dampness and cold, tends to promote the frequency of nodes as a sequel of the venereal disease.'   But then, as the long and abundant use of mercury does not produce periostosis after other complaints, and seeing that chancres treated altogether without mercury rarely lead to nodes, it would seem as if these swellings are the product of the combined operation of syphilis and mercury together.   Be this as it may, no one is able to determine by inspection, when any case presents itself, whether it partake most of the venereal or of the mercurial character.

A doubt has been expressed by some eminent surgeons, among whom are Mr B. Bell and M. Monfoncelon, whether inflammations and swellings of the periosteum ever proceed

from an internal or constitutional cause ; that is, whether all such cases of swelling as have been supposed to be in this membrane, may not be referred to a disease of the bone. ' That the periosteum may become inflamed,' says Monfonce-lon, ' there can be no doubt ; but it may well be doubted, whether those hard tumours resulting from syphilis originate in the periosteum.' To prove this, he assumes the point as granted, that nodes originate from the bone; and then, on this false basis attempts to show, that all other periosteal tumours must, from their analogy to bony tumours, arise from the same source. ' They have,' says he, ' identity of seat, that is, on the osseous tissue, as venereal exostosis ; identity of cause, viz. syphilis ; the same local symptoms ; for, like the reputed periostoses, so venereal exostoses are preceded by pains of a peculiar character ; the tumours in all cases are hard, circumscribed, and painful, when pressed.'

In reply to this it may be remarked, that the proofs here adduced, viz. identity of seat, cause, and local symptoms, are as well suited to establish a belief in the existence of perios-tosis, as to refute it ; they go as far to prove that exostosis exists as a consequence only of periostosis, as to prove what the author has attempted, that the bone in all cases of vene-real nodes is the part primarily affected ; and, although it is not positively certain that nodes originate in all cases in the periosteum, yet its greater activity and susceptibility to in-flammation, qualifies it for earlier participation in disease ; to which it may be added, that in a great proportion of cases, such equivocal tumours are more readily resolved than bony tumours can be, judging from our experience in well marked cases of the latter kind. We may, therefore, doubt of the existence of venereal exostosis, except as a consequence of previous periostosis—and this doubt is strengthened by the concurrent opinion of the best physiologists of the present day.

' Some writers,' says a distinguished author, ' have divided venereal exostosis into *true*, when the swelling is owing to an increase of the substance of the bone, and *false*, when the tumour arises from a thickening and inflammation of the

periosteum.   But the hardness of periostosis is often as great as if the bone itself were affected ; hence these tumours have been, and are still, often mistaken for real complaints of the bones, which are much less frequent than is commonly imagined.   Dissections have lately shown that these tumours especially, on their first appearance, are generally in the periosteum and not in the bone.   Sometimes, and especially when they have been long neglected, or ill treated, the bone itself becomes affected with a real *exostosis*.'   The same author remarks, that he had seen what he took to be a ' voluminous exostosis from syphilitic origin, occupying all the lower part of the humerus, and after having for a long time resisted scientific treatment, disappearing quickly and completely on the occurrence of other syphilitic affections in the fauces ;' and, in another place he lays it down as a general rule, that ' exostoses are never resolved, and that the examples of this mode of termination cited by authors are cases of periostosis, the nature of which is different, though its appearance is very similar.'   Beclard observes, ' there are tumours that seem to be deposited, as it were, on the surface of the bone, so that it is perfectly sound below ; such are most exostoses.   This affection depends upon an inflammation of the periosteum, in consequence of which this membrane swells and secretes, from its internal face, a matter which hardens and becomes confounded with the texture of the bone ; thus a sort of periostosis precedes the osseous tumour.   This is more or less voluminous, according to the extent of the inflammation.   If this be circumscribed, there results from it what are called *nodes*.   These tumours are at first very distinct from the bone ; afterwards maceration still detaches them from the bone, and they are seen holding to the periosteum, and it is not till a long time has elapsed, that they appear to be continued from the osseous texture ; it may then be seen by the microscope, that their vessels have not the same arrangement as those of the rest of the bone.'   It may be added in conclusion, that almost every anatomical museum contains skulls having nodes, which are harder than the bones on which they rest, and that, in the

early stages of these, there was no observable difference between them and those that have terminated by metastasis or resolution. Unless, then, we hold that tumours of bone can be readily resolved, which is somewhat doubtful, we are authorized in believing that venereal exostoses and nodes, originate in most, if not all cases, in an inflammation of the periosteum.

Venereal periostosis is generally seated on those parts of the osseous system that are superficial and exposed. Commonly it appears under the scalp, over the os frontis and ossa temporum ; sometimes upon the outer surface of the sternum, on the side of the radius and ulna, and often on the inner surface of the tibia. The greater tendency of the disease to these parts seems to be founded on the exposedness of their situation to the influence of external exciting causes; to contusions, and to changes of atmospheric temperature, both of which are often referred to by the patient, as the cause. And it is remarked by persons experienced in the diseases of seamen, that such tumours appear much oftener on ship-board, where cold and dampness prevail, than on land, and are earlier in coming forward, in proportion to the degree of exposure. The exposed situation of the bones of the nose, accounts also for their being so often the seat of secondary venereal affections.

Venereal inflammation of the periosteum is preceded by constant pain, more or less acute, and which is particularly severe in the night. A swelling then takes place ; at first it is moderate, is more or less tender to the touch, and is circumscribed in its limits. Its circumference is insensibly confounded with the bone, on which it rests. The tumour adheres to the bone, is immoveable, and appears to grow up from it ; and, until the disease is somewhat advanced, the most experienced practitioner is unable to determine by touch, whether it exists in the bone or periosteum. As the disease however, makes progress, its peculiar character is developed, and the nature of the tumour is then found to vary, according to the extent and violence of the inflammation.

Periosteal tumours, in their advanced stage, will be found

to consist of three kinds :—The *first* is a tumour, which, to the touch, appears to arise from the bone, and acquires the volume of a nut or small egg ; at first hard, firm, and shining, after an indefinite length of time it softens in its centre, where matter collects.   The skin then becomes thin, and when opened or spontaneously discharged, the matter is transparent and gummy, like a solution of gum arabic ; hence the French name gommè.   Sometimes a whitened or grumous lymphatic matter is discharged, of the consistence of paste or soft cheese.   Cirillo, Cullerier, and Astruc, say, that this kind succeeds to buboes that have suppurated badly, after painful ulcers of the throat, pustules on the skin, and more particularly in subjects that are debilitated by the abuse of mercury ; but that they may be the consequence of any species of primitive symptoms that have been neglected or ill-treated.   This affection, I believe, is seated in the outer layer of the periosteum only, for the following reasons :— Because the greater length of its superficial fibres, as stated by Bichat, will allow of their distention by matter lodged between them and the inner layer ; because the vessels destined to furnish calcareous matter to the surface of the bone, are not affected by this inflammation as they are when the whole thickness of the periosteum is alike moderately inflamed, as in the formation of callus, and exostosis, and as they were in the experiments on rabbits, where osseous matter was deposited on the surface of the metallic ferule ; and lastly, because in opening tumours of this description, the bone is found not entirely denuded, although the outer surface of the periosteum has evidently participated in the disease.   This tumour I shall call *gummous*.

The *second* kind of tumour may, from its nature, be termed cartilaginous or osseous, according as it is recent or of long standing.   As it is resolvable, probably, in its early stage only, and more intitled therefore to medical attention at this period, I shall use the term *cartilaginous*, which is expressive of this stage.   It presents nearly the same appearances as the gummous kind, is attended with considerable pain, is firm and hard, as if proceeding from the bone,

and is slow in its progress.   In a few cases, the tumour con-
tinues stationary for some time and then diminishes a little,
or it may entirely disappear.   This termination by resolution
rarely takes place spontaneously, unless by metastasis, and
then the venereal affection is apt to be translated to the
throat ; most commonly, after the tumour has acquired con-
siderable magnitude, it becomes indolent and harder, and
continues in this state for life.

There is a *third* kind of venereal periostosis, which, from
its nature and tendency, I shall call *necrotic.*   It differs from
the gummous kind, in that it extends through the periosteum,
oftentimes affecting the surface of the bone with superficial
necrosis, and from both the gummous and cartilaginous kind,
in that the inflammation is of a graver character, is more ra-
pidly developed, is attended with great pain, especially in
the beginning, and is very tender to the touch.   The integu-
ments are more highly and extensively inflamed.   It differs
also in the nature of its discharge when it breaks through
the skin, being a dark fœtid kind of matter, and the bottom
of the abscess is of a dull yellow colour.   Soon after it opens,
a greyish decayed substance is discharged, which proves to
be the dead periosteum, and the bone is now left denuded,
or is covered with red granulations.

I am aware that this kind of diseased periosteum may be
considered, and indeed by some has been pronounced a ne-
crosis in its origin, and that the inflammation of the perios-
teum is a secondary affection.   Admitting, however, that
there is as much in the history and appearance of the disease
to support this opinion, as the one I have advanced, of its
being of periosteal origin, yet, considering that the perios-
teum takes on inflammatory action sooner than bone ; that it
is here destroyed and discharged with the matter soon after
the tumour is opened, and is not so destroyed and discharged
in those cases of artificial necrosis produced by a slip of lead
passed round the bone inside of the periosteum, where this
membrane remains entire and deposits new bone on the out-
side of the lead ; seeing too, that such tumours in their in-
cipient state are oftentimes speedily resolved by a mercurial

course with antiphlogistic treatment, which could hardly be supposed to arrest the progress of a real necrosis ; ' for,' as Richrand observes, ' a necrosis *begins* as it were with death of the bone ;' these considerations together, must weigh in favour of the opinion, that superficial necrosis of venereal origin is in all cases the consequence of an acute inflammation of the periosteum, that kills the surface of the bone by the previous destruction of its nourishing vessels in concurrence with the disordered action communicated from the inflamed membrane.   Should it be urged, that, because in deep-seated necrosis the periosteum remains quite unaffected, the bone must therefore be the primary seat of the disease, it may be said in reply, that, in this case, the medullary membrane which serves as a periosteum to the central part of the bone, supplying it with nourishment, holds the same relation to deep-seated necrosis as the periosteum does to the superficial kind.

There are, then, three kinds of venereal periostosis, differing from each other chiefly in their seat and degree of inflammation.   The first is indolent in its character, and affects only the outer surface of the membrane, and from the nature of its contents, may be called *gummous periostosis.*   The *second* is a low degree of inflammation which affects the whole thickness of the membrane, and results in exostosis. Under this grade of inflammation may be ranked that which exists in the formation of callus and of new bone.   The tumour being in the first instance cartilaginous, in which osseous matter is deposited, and this being the stage in which it may be dispersed, and is, therefore, as before observed, the most interesting to the surgeon, I call it *cartilaginous periostosis.*   The *third* is a high degree of inflammation of the whole thickness of the periosteum, which ends in the destruction of the membrane and contiguous layer of bone ; this I call *necrotic periostosis.*

In subdividing these kinds of constitutional periostosis according to the question proposed for this dissertation, the two first, or gummous and cartilaginous periostoses, may be pronounced *chronic* in their character, differing from each

other chiefly in their seat. The third, or necrotic kind, may, on the other hand, be considered an *acute* inflammation of the periosteum, so violent, that if not subdued, it ends in gangrene. The degree of inflammation found to exist in any case, is of itself sufficient ground for determining to which of the two classes such case belongs.

Venereal periostosis of either kind, may be distinguished from other constitutional affections of this membrane, by the previous existence of syphilis, and exemption from scrofula and scurvy, and such other constitutional diseases as affect the periosteum ; by the greater pain attending such venereal swellings from their first appearance, than exists in swellings of this membrane from other causes, and by its exacerbations in the night ; by their situation, which is on the surface of superficial compact bones ; the other affections, and caries in particular, preferring the cellular part of bones, as their heads and the bodies of the vertebræ.

The prognosis, in such affections, may be regulated by their difference of character. The gummous kind will yield to anti-venereal remedies, and entirely disappear. The cartilaginous kind will end in exostosis, if not arrested at an early period by a similar course of treatment. Cases of the necrotic kind, if not arrested at an early period by anti-venereal and antiphlogistic remedies, will, notwithstanding their subsequent use, end in necrosis.

When syphilis, in concurrence with the causes we have mentioned, has extended to the periosteum, it shows the disease to be far advanced, and to have taken deep root in the system. It is often accompanied with other symptoms, as various cutaneous eruptions and affections of the throat, and the whole constitution is more or less impaired. The indications of cure are so fully laid down in treatises on the venereal disease, that very little can here be added. Mercurial remedies are chiefly to be relied on, and may be administered internally, or applied by frictions, or what is better, the employment of both methods simultaneously, it being important to make a general and sensible impression on the system as soon as possible. The form of medicine best suited

in such cases for exhibition is found to be muriate of mer-
cury, given in some convenient vehicle, and in such doses as
the stomach can bear.   Its peculiar advantage over other
forms of mercury, probably, consists in its acting sooner on
the whole system, and its greater tendency to affect the ex-
treme vessels, as is evinced by its efficacy in cutaneous dis-
eases.   Although the army surgeons of England have strenu-
ously maintained, of late, that mercury is not necessary for
the cure of early stages of syphilis, and that its incautious
use produces most of the inflammations of the periosteum of
which we are now speaking, they still acknowledge its effi-
cacy in the cure of them, and depend on nothing so much as
on moderate doses of the medicine combined with other re-
medies, particularly sudorifics.   The free use of the medi-
cine here recommended is to be continued so long only as
may be necessary to make a sensible impression on the sys-
tem, to be manifested in the breath, and by a slight uneasi-
ness in the gums.   Beyond this point most modern practi-
tioners agree, that its use would be injurious, and the object
in *hastening* a mild mercurial action at the onset is, to arrest
the progress of the local affection as soon as practicable.

After the constitution is slightly impregnated, it will be
necessary to preserve it in this state for a time, till the peri-
ostosis begins to yield ; and should this not take place in two
or three weeks, there will, after this period, be as much to
apprehend from a further continuance of the remedy, in a
system already somewhat impaired, as from the disease.   ' In
the great hospitals in Europe,' says Mr Cooper, ' long pro-
tracted mercurial courses for the cure of such swellings, are
totally relinquished.'

Auxiliary constitutional remedies should be employed, both
during and subsequent to the mercurial course, as the decoc-
tion of the woods, guaiacum, &c. ; opium may be employed
with advantage to allay pain and irritation.   A class of medi-
cines, termed alteratives, as arsenic, antimonials, and the
blue pill, have been advantageously employed in conjunction
with sudorifics, after the mercurial remedies are laid aside.

A new patent medicine, *Swaim's panacea,* has been employ-
ed with great success, after a failure with mercury.

When mercurials and local applications have been con-
tinued two or three weeks, without producing any sensible
diminution of the tumour, it will in some cases, particularly
those of the gummous kind, seem to aggravate the disease.
Whether this be attributable to disorder of the constitution,
induced by the medicine which disturbs healthy action in the
part; or whether the disease has assumed a mercurial in
exchange for a venereal character, as Mathias would main-
tain, I am unable to determine. Be this as it may, such
tumours have improved in their aspect, by dropping the
mercury and adopting such a course of medicine, aided by
such diet and regimen as will invigorate the system and im-
prove the health generally.

Local treatment should vary according as the inflammation
is acute or chronic. In the former, or necrotic kind, two
things are indicated; to reduce inflammation and to allay
pain. The first should be attempted by the free application
of leeches and saturnine lotions. Pain, which is more severe
in the night, may in some degree be mitigated by the appli-
cation of laudanum and anodyne plasters, such as extract of
poppies and of cicuta, or by anodyne balsam. Blisters have
been extolled by some, and are used in St Bartholomew's
hospital; but in the highly inflammatory kind their applica-
tion interferes with the use of the above named remedies,
which are more strongly indicated.

In *chronic venereal periostosis* we are to expect more
pain and inflammation than is common to exostosis of the
idiopathic or local kind; still, however, when compared with
the very grave kind that terminates in venereal necrosis, or
even in idiopathic necrosis, it may with propriety be termed
chronic, and regarded as such in the mode of treatment that
is to be adopted. Topical bleeding will rarely be found
necessary. Anodynes at night, in combination with diapho-
retics, with copious draughts of the decoction of sarsaparilla
or mezereon or lignumvitæ, or the three articles combined,
as in the ' *decoction of the woods,*' are, in concurrence with

a mercurial course, chiefly to be relied on.   The topical applications avail but little.   The French are particularly partial to the *emplâtre de vigo cum mercurio.*

From *constitutional* or *symptomatic periostosis* requiring constitutional remedies, we turn to the other class which comprises such cases as are idiopathic or of local origin, and require to be treated accordingly.   These, like the others, are best divided into *acute and chronic*, on account of the difference in the nature of their termination, depending, as this difference does, on the degree of inflammation, and because such a distinction leads to a more correct mode of treatment.

The causes are of two kinds ; *first*, the existence of a defect in the periosteum itself, occasioned by some previous disease that has impaired the general health, and from which the system seems to relieve itself by concentrating the derangement in a particular part.   A few cases have come within my limited observation, and more have probably been witnessed by experienced practitioners, where periostoses have occurred as a sequel of typhoid fever, and which have from this fact been termed *fever-sores.*   Another instance of this kind of inflammation, is that of paronychia gravissima, or what is vulgarly termed a *felon*, which often ends in necrosis or caries of the bones of the fingers.   Sarcomatous tumours of this membrane, termed by some writers ' *lymphatic tumours of the periosteum*,' to which some constitutions have a remarkable tendency, are, perhaps, entitled to a place under this head, though we have enumerated them under the constitutional kind.

The other causes of acute inflammation of the periosteum, and which also endanger the life of the bone on which it rests, are wounds, contusions, comminute and compound fractures, acrid substances, caustics, and extreme degrees of heat and cold.   In these cases the membrane may be at once destroyed by the violence of the wound, or by excessive heat or cold, without the intervention of inflammation ; or the inflammation consequent to the injury may cause a sphacelation of the membrane.   It was formerly supposed,

that purulent matter collected near a bone would, by re-
maining there, become acrimonious, and in time corrode the
periosteum and injure the bone; hence it became a rule to
open such abscesses as soon as their existence was discover-
ed.   But it is now believed, where the constitution is sound,
that if an abscess be formed over a bone not originally dis-
eased or hurt by the causes that produced the abscess, nor
the periosteum injured by exposure to the air or by escha-
rotics, the pus will prove harmless, occasioning merely a thick-
ening of the membrane, as it does of the peritoneum when
lodged against it.   The admission of air, in such a case,
through the sinus to the periosteum, may, however, stimulate
its vessels and inflame the membrane; or, as Monfoncelon
observes, it may change the pus from a bland, unctuous, in-
odorous fluid, to one of an acrimonious kind, that will inflame
this membrane, if not destroy it.

As acute inflammation of the periosteum, by whatever
cause induced, endangers the life of the contiguous bone, by
destroying its nourishing vessels, so, on the other hand, a mo-
derate chronic inflammation of it, will exalt its secerning
function, and may cause an exuberant deposition of bony
matter, in the form of exostosis.   The attention bestowed on
such tumours caused by syphilis, renders it unnecessary to
dwell long on the nature of exostoses of the idiopathic kind.
These tumours, like those of syphilitic origin, have usually
been considered as growing out of the bone like a tumefaction.
My opportunities of examining such tumours have been very
limited, a circumstance, however, of less regret to me, since
a most valuable account of them has been given to the profes-
sion, by Sir Astley Cooper.   Although his *Essays* are in
the hands of every practitioner, I am induced by the great
accuracy of his observations, and by their direct application
to the present subject of inquiry, to give an extract from
them, which will show that these tumours, like the syphilitic,
originate in an inflammation of the periosteum, and are car-
tilaginous in their early stage.

Sir Astley says, ' I have examined exostoses in the early
part of the complaint, in which ossific matter had not yet

been deposited, but in which, from dissection in other cases, I know that such a deposition would in future have occurred.

‘ Exostosis has two different seats ; it is either periosteal or medullary.   By *periosteal* exostosis, I mean a deposition seated between the external surface of the bone and internal surface of the periosteum, adhering with firmness to both surfaces ; and by the *medullary* is to be understood a formation of a similar kind, originating in the medullary membrane and cancellated structure of the bone.

‘ With regard to its nature, exostosis is of two kinds, either *cartilaginous* or *fungous*.   By the cartilaginous is intended to be expressed that species which is preceded by the formation of a cartilage which forms the *nidus* for the ossific deposit : and by *fungous*, a disease similar to that which Mr Hey has denominated fungus hæmatodes, but somewhat modified by the structure of the part in which it originates.’

‘ The parts most liable to this affection,’ he says, ‘ are the os femoris, tibia, and fibula, next the bones of the face, and particularly about the alveolar processes, the os frontis, and often the bones of the fingers.’

After dwelling on the fungous kind which originates in the medullary membrane, he treats of the cartilaginous exostosis of the medullary membrane, which, he says, differs greatly in appearance from the former ; he then takes up the subject of *periosteal exostosis*.   ‘ This disease,’ says Sir Astley, ‘ like the preceding, is both of a fungous and cartilaginous kind.   The former of these scarcely differs in its symptoms from the fungous exostosis of the medullary membrane, except that the general swelling of the limb is less, and the particular tumour is more prominent : but there is the same want of sensibility in the commencement, with some pain afterwards ; the skin remains free from discolouration, and has a similar tuberculated appearance.   Ulceration, bleeding, and sloughing, with great discharge ensue, and occasion the destruction of life, if some operation be not performed.’

This disease is attributed to accident ; but any irritation upon a bone, in an unhealthy constitution, will produce it. He concludes this interesting account of fungous periostosis,

with a few remarks on its treatment, and then takes up the subject ' *Of Cartilaginous Exostosis between the Perios-teum and the Bone.*'

' This is a very different affection to the preceding, and more deserving the attention of the surgeon, since it admits of relief by operation, though sometimes with the loss of the affected limb. It originates in the inflammation of the perios-teum and of the corresponding part of the bone; and a depo-sition of cartilage, of very firm texture, and similar to that which forms the nidus of bone in the young subject, adheres to both these surfaces. The periosteum adheres to the ex-ternal surface of the swelling, and the swelling itself is at-tached still more strongly to the surface of the bone. Within this cartilage a bony matter is deposited, which continues afterwards to be secreted as the cartilage increases in bulk; for it appears, that, between the periosteum and bony mass, cartilage is constantly secreted, which constitutes the exte-rior surface of the tumour. Thus, on dissection we discover, 1st. the periosteum thicker than natural; 2d. the cartilage immediately below the periosteum; and 3d. ossific matter deposited within the cartilage, extending from the shell of the bone nearly to the internal surface of the periosteum, still leaving on the surface of the swelling a thin portion of cartilage unossified. When the accretion of these swellings ceases, and the disease has been of long standing, they are found to consist, on their exterior surface, of a shell of osse-ous matter, similar to that of the original bone of the same cancellated structure, and communicating with the original cancelli of the bone. Consequently, when an exostosis has formed in the manner here described, the shell of the origi-nal bone becomes absorbed, and cancelli are deposited in its place. In the mean time, the outer surface of the exostosis acquires a shell resembling that of the bone itself. When the exostosis has been steeped in acid, and by this means deprived of its phosphate of lime, the cartilaginous structure remains of the same form and magnitude as the diseased de-posit; and, as far as I have been able to discover, it is effused precisely in the same manner as healthy bone.

'For the most part these diseases are attended with very little pain, and, especially at their commencement, are but little complained of: when, however, they have acquired some considerable bulk, they do not fail to occasion painful sensations by their pressure upon the surrounding parts.'

The most frequent seat of the periosteal exostosis is upon the inner side of the os femoris, just above the internal condyle, and in the direction of the insertion of the triceps muscles. Occasionally it appears on the tibia, immediately under the insertion of the sartorius and gracilis muscles, and sometimes at the insertion of the deltoid muscle in the os humeri.

'With respect to the cause of the periosteal exostosis, which has but a small base, and which follows the course of the ligaments or tendons, as that in the direction of the triceps femoris and gracilis, I am of opinion that it arises from exertions disproportionate to the strength of the patient. The tendons, which are fixed in the bone, becoming sprained by over-exertion, inflammation is excited in them, which is thence communicated to the periosteum and bone, and a deposition is consequently produced in the direction of the tendons sprained and inflamed, upon which the weight of the body is more particularly thrown. We see also in horses, that the disease denominated *splent* is produced by sprains of the ligaments. This disease is exostosis. The same effect is also produced in the human subject by a sprain of the ligament, which connects the fibula with the tibia.' Blows also occasionally produce this disease. 'I have seen,' says Sir Astley, 'an enlargement of the tubercle of the tibia, produced by a fall on the knee, continue for many years.' Pressure is also sometimes a cause of exostosis, as from long continued bandaging over a bone.

Nature, in her wise and beneficent provisions for the reparation of injuries done to the human system, offers no instance more entitled to admiration than that which is exhibited in the formation of callus after a fracture, and in the deposition of new bone round a dead one. The inflammation concerned in these processes has already occupied a due share of attention, when speaking of the functions of the periosteum.

Pathological Remarks.

In consequence of severe local injury, we have already seen that the periosteum may at once be deprived of vitality, as by intense heat and cold, and by caustic ; by extensive separation of it from the bone, or by long exposure to the air, the effect of which is, to dry up the few vessels that belong to it ; and the consequence of such injury must always be death and exfoliation of the contiguous bone. The same thing will be likely to follow when the inflammation is acute, when the patient is old, or has a bad constitution, and, more especially, if, as formerly, irritating dressings are applied to the denuded periosteum, or foreign substances, as lint, be interposed between it and the bone. The effects of a wound of the membrane will be varied by the kind of instrument with which it is inflicted, and by the manner in which it is applied. Thus, a contunding instrument presses the periosteum against the bone, tears and breaks the communicating vessels, contuses the bone, sometimes breaking it, and always impairing its healthy action in the part injured. A cutting instrument may, on the other hand, merely incise the periosteum, or, gliding over the surface of the bone, may separate the periosteum extensively, and yet leave the bone uninjured. Or, even if a portion of the bone be shaved off, by the oblique direction given to the cutting instrument, granulations may spring up from the bone to fill the chasm, which will unite and cicatrize with the replaced integuments. So also, when the detached periosteum is of little extent, the patient young and healthy, and the treatment calculated to prevent inflammation, hopes may be entertained that no part of the healthy bone will die ; granulations may soon arise from its surface and cicatrize with the surrounding integuments.

The consequence of violent and long continued inflammation of the periosteum, we have seen, is necrosis ; when circumscribed in extent, the necrosis will be superficial, but where acute periostosis is extensive, the medullary membrane participates in the affection, and this will be likely to destroy the whole intervening bony substance ; and here,

the entire work of forming a new bone is done chiefly by the periosteum. If the acute inflammation be on the cranium, it will extend through to the dura mater, and, from the afflux of humours, it will occasion, may, by compressing the brain, endanger life. Richerand attributes the secondary inflammation to a direct communication of it through the blood vessels. Hunter explains it on the principle of contiguous sympathy. But, whichever theory we adopt in this case, I think it is safe to subscribe to the opinion of Bichat, in referring the occasionally wide extension of periosteal inflammation from a mere puncture to the agency of sympathy; and this fact shows the importance of attending to the state of the constitution, as well in forming a prognosis as in managing the treatment.

Treatment.

The existence and extent of an injury of the periosteum are to be ascertained by the form of the wounding instrument, and the manner in which it was applied; by exploring it with a probe or sound, and, on the information thus obtained, the prognosis and mode of treatment should be predicated. It is hardly necessary to add, after what has been said, that foreign substances are to be removed, the integuments carefully re-applied, air excluded from the wound, and soothing and emollient applications employed, instead of spirits and stimulating balsams, as was the practice formerly. The digestive organs are to be regulated and constitutional excitement prevented by attention to diet and regimen, and by depletion, should the symptoms require it.

Where acute inflammation settles upon the periosteum, in consequence of a disordered state of the constitution induced by fever as before mentioned, vesication over the part has proved beneficial by diminishing the evil, and sometimes has entirely obviated it. We observed that the local affection is thought to be a concentration of the general derangement of the constitution. Perhaps the reason why such strong artificial irritation arrests the progress of the disease, is, that

it answers the same valuable purpose to the constitution,
that the concentrated local affection does.   This suggests an
important consideration in all cases which we believe to be
produced for constitutional relief, whether we cannot substi-
tute operations for those of nature, which shall answer equally
well for the purposes of the system.

When acute inflammation attacks the periosteum at the
end of the fingers, there is not so much reason for referring
it to derangement of the constitution ; it is often attributable
to some local injury done to the part, perhaps a long time
previous to the accession of the inflammation, which has left
the membrane weakened and susceptible of disease.   Here
the disease is rendered more severe by the unyielding struc-
ture of the integuments, and also by the plentiful supply of
nerves constituting the sense of touch.   To give relief from
the intense suffering of the patient, occasioned by the strong
pressure exercised upon the part, by tumefaction and by
matter deposited from the inflamed membrane, it has been
deemed good practice to lay the part open to the bone, since
the admission of air to the bone is not followed with such
serious consequences here, as it is where a large bone is im-
plicated in the disease.

‘ Periosteal exostosis,’ says Sir Astley Cooper, ‘ admits of
remedy, from internal medicine, from external applications,
and when considerably advanced from surgical operations ;
but,’ he adds, ‘ that his experience does not furnish him with
an example from medical treatment, *except in the very com-
mencement of the disease.*   The common alterative plan of
small doses of mercury, with decoction of sarsaparilla, com-
bined with stimulating plasters as the *emplastrum ammoniaci
cum hydrargyro*, with the view of promoting absorption of
that which has been effused, by its stimulating qualities and
by its pressure, are the means which are generally adopted.’
Mr Abernethy advised, in constitutions that tended to the
formation of osseous tumours, the use of muriatic and acetic
acids, but they failed of producing any apparent effect.

XII. *Case of Disease of the Antrum, with the Appearances on Dissection.*   Communicated for this Journal by PLINY HAYES, M.D.

THE subject of this case was Mrs ———, aged 53.

About the month of May 1826, or earlier, she began to feel a dropping of water from the nose. Sneezing, and a sense of obstruction in the left nostril, as if from taking cold, was first felt during May. Sense of obstruction very different at different times, generally slight ; sometimes suddenly great, but soon subsiding ; never complete.

Once or twice, during the summer, felt a little soreness just below the cheek bone, on wiping the face ; but had no more of it.

About the last of August, a swelling took place on the left side of the face, which she supposed to proceed from ' ague in the face.'   In four or five days, a little abscess broke in the gum, and the swelling disappeared, but not entirely.

About 1st September went to Avon Springs ; thought the visit made the nostril worse ; found that cold and damp air increased the obstruction.

A little twitching in the inner corner of the eye, and over-flowing of the tears, began to be observed in September.

Last week in September consulted a physician, who directed her to snuff the ' the farina of hops,' and grease the side of the nose three or four times a day.

About the last week in October finding no relief, applied to the doctor again, who directed powdered blood-root to be snuffed, and the greasing of the nose to be continued. The blood-root was very irritating, but caused no sneezing ; used but little of it. The obstruction of the nostril soon became complete. ' All this time,' says she, ' I had no pain in my face, but had a little sense of pressure, extending from the forehead down the left side of the nose.'   The discharge from the nostril became thicker, and more like mucus.

There being still a little swelling in the cheek, and one of the two remaining molares on that side being defective, she went to a dentist and had it extracted about November

6th.   Swelling did not diminish, but rather increased for a few days, and never subsided entirely.

Three or four days afterwards sent for the doctor, and put herself *under his care.*   He prescribed a snuff of powdered bark and sugar of lead ; could snuff it only into the right nostril, and did not throw it into the left.   He also prescribed a solution of corrosive sublimate ; a dose twice a day, which was taken in variable doses for seven or eight weeks, viz. to December 30th.

During this time, the face swelled considerably once, but soon subsided to its former state, viz. enough to be plainly perceptible, appearing between the nose and the cheek, and rather below the level of the cheek bone.

Before commencing the corrosive sublimate, there was ' no pain at all in the cheek.'   Soon after, she began to feel a tightness in the teeth, and occasional pains *about* the cheek, very variable ; sometimes darting ; never fixed.   Some tenderness and soreness of the gums from the mercurial took place about the last of November, but no spitting.

During the use of these remedies, the discharge from the nostril almost entirely ceased.

I first saw the patient, (in consequence of the sickness of her physician,) about 30th December.   There was then some fetor, which seemed to be mercurial ; some soreness of the gums ; some swelling on the left side of the nose, towards the cheek bone ; some watering of the eye ; complete obstruction of the left nostril ; the right clear ; no redness of the cheek ; no fixed pain.   On examining the nostril, found it obstructed by a tumour of a light flesh colour, filling it completely, and descending almost to the external opening ; probe passed readily above and beneath it, but not around it on either side.   Examination caused no pain ; a very little blood flowed.   General health pretty good.   Weather very cold.

I told the patient I thought it very probable, (but not certain,) that the whole complaint proceeded from the ' polypus' in the nose, and proposed to remove it as soon as the mercurial action should subside a little, after which I could more readily determine whether there was any other disease.

About the 10th or 11th, a small red spot commenced on the most prominent part of the cheek bone, which gradually increased.

17th. Met Drs Carter and Smith. Swelling of the cheek (at the cheek bone) considerable, and tumour in the nostril large. Decided to attempt the removal of the tumour in the nostril. No polypus forceps being at hand, it was attempted by Dr Carter with dressing forceps ; found difficulty in holding it, but extracted some considerable portions, one or two of which was distinctly lobulated ; they were colourless, or rather ash coloured, after extraction ; seemed to have grown from the inferior turbinated bone. Pain of the operation slight ; hæmorrhage not great.

Next day, very comfortable ; swelling of the cheek gradually subsided. In about eight days, as small as it had been at any time for five or six weeks before ; scarcely any redness remaining ; could blow through the nostril ; very much encouraged. No discharge of matter from the nose.

28th. Cheek began to swell again suddenly, with much œdema of the eyelids.

Feb. 4th. Dr Smith came again from Geneva. With polypus forceps I removed a considerable quantity of substance like that before extracted. Hæmorrhage slight ; pain of the operation considerable.

Three or four days after, a small discharge of matter took place externally, just below the most prominent part of the cheek bone, but healed immediately.

About the 12th, a free discharge of matter from the nostril took place, and continued nearly two weeks. The swelling mostly subsided, and was principally confined to its original seat near the nose. The discharge of matter ceasing, the cheek began to swell again.

25th. Found the swelling considerable, and fungus protruding from the outer surface of the alveolar process—the cheek above and within being somewhat yielding. Says she had felt the fungus sometime before. I had not seen her for eight days.

26th. A discharge of matter took place through the fungus, which somewhat relieved the swelling.

March 2d. Appetite poor—prescribed quassia, which improved it.

3d. Swelling increased very suddenly, but partially subsided.

5th. Extracted the remaining molaris, which was considerably loose. Passed a probe through a fungous and bony mass into the centre of the tumour, viz. into the original place of the antrum—found no cavity—a little blood flowed —no matter—tumour almost insensible—considerably hard —somewhat elastic, both on the cheek (including the cheek bone,) and inside of the gum—the two bicuspides still remain, and are pretty firm—nostril still obstructed towards the throat, but clear anteriorly.

It is now some weeks since I expressed my opinion, although not to the patient, that the disease would be fatal.

From this period the tumour continued to protrude from between the cheek and the sockets of the teeth, crowding the latter, with the remaining teeth on that side, towards the centre of the mouth. It partially filled the mouth on that side, caused some difficulty of swallowing, and at length prevented the teeth from coming together, and, of course, the mastication of food. Soon it rested on the inner surface of the lower lip, and finally protruded nearly two inches beyond the lips towards the chin. There was a constant fœtor from the disease. It seemed to discharge a very little matter. It often bled within the mouth; and from this cause, and for the want of nourishment, which at last she could scarcely swallow, her strength gradually failed. Yet she lingered to the 15th May.

Examined next day.

The tumour protruded about 1 1-2 inch from the mouth; of a reddish cast, but partially dried and shrivelled. That side of the face was considerably enlarged. On exposing the tumour, it was found to consist of a tuberous fatty mass, nearly white; the protruded part being covered by the lining membrane of the mouth. The centre consisted of a dusky greenish pus, in a coagulated state. In front, it was covered only by the skin, and near the prominence of the cheek, where

the tumour was more protuberant, only by the cuticle, which was so thin that it could not be dissected off. On the right, it extended to the vomer, which was partially destroyed, and pressed against the opposite side of the right nostril, so as to close it. Below, it lay upon the tongue, the left lower jaw, and inner surface of the cheek and lip. To the left, it extended to the skin of the cheek, pressing it a little outwards, and to the inner surface of the malar bone and ramus of the lower jaw. Above, it reached to the eye, which lay upon it with the intervention of only a membrane. Backwards, it run along between the ramus of the lower jaw, and the lining membrane of the fauces, to the muscles covering the anterior surfaces of the cervical vertebræ. It was considerably branched and uneven posteriorly, and of a slight texture ; so that it was impossible to ascertain its particular attachments, or source of nourishment. The whole tumour was judged to weigh about six ounces.

The only vestige of the left superior maxillary bone remaining, was the upper extremity of the nasal process, four or five lines in length. The principal part of the os nasi of the same side was gone ; also the palatal suture and its ridge, the left os palati, the left orbitar plate of the ethmoid bone and the partitions of the cells, leaving only the right orbitar and cribriform plates ; the left ossa turbinata ; and the maxillary and orbitar processes of the malar bone, leaving only that part attached to the os frontis and zygoma. The tumour rested posteriorly, in part, against the body of the sphenoid bone, its left pterygoid processes being partially destroyed. There was a quantity of mucus in the superior nares, very distinct from a quantity of pus in contact with it, in the situation of the ethmoidal cells, and in the sphenoidal sinus.

The teeth of the upper jaw on that side, which had not been extracted, viz. the incisores, cuspidatus, and bicuspes, all remained, but without any sockets. They seemed to be retained by scarcely any thing more than the mucous membrane of the gums.

The lower jaw was uninjured.

Canandaigua, N. Y. May 1827.

XIII. *Case of Fractured Cervix Femoris within the Cap-sular Ligament ; with Remarks on the Treatment of these Fractures.* Communicated for this Journal* by P. Spalding, M.D.

W. C. æt. 52, July 22, 1824, fell about 16 feet in a saw mill, struck upon the left thigh and trochanter ; when raised up, his left leg stood off at an angle of about 40 degrees from the body, but was immediately brought into proper shape by an assistant.

When called, which was but a few hours after the accident, the following symptoms were present :—

1st. The foot and knee were considerably everted.

2dly. The limb was a little shorter than the other, which was evident from a comparison of the internal malleoli, and the position of the limb when the patient stood erect.

3dly. The limb could be drawn down its natural length, but when the extension was abandoned, it was immediately drawn back, by the retraction of the muscles.

4thly. There was a slight alteration in the position of the trochanter major.

5thly. The pain was very trifling, but when the patient was directed to bear his weight on the affected limb, it was very severe in the region of the trochanter minor. After due examination, the nature of the accident was made known to my patient, and perpetual extension recommended ; to which he seriously objected, believing that the injury was in the acetabulum, or below the neck of the bone ; or, admitting it to be a fracture as above stated, he objected to the operation, on account of a pectoral affection, which prevented him from being in a horizontal position any length of time. The limb was put upon a bolster extending its whole

* Dr Spalding's paper was accompanied by a drawing of his apparatus, but it was not in the power of the editors to have an engraving made from it. This, however, they do not consider as absolutely necessary, since the description conveys an idea of it, nearly if not quite as accurate as a plate would have done. —[Ed.]

length, another was placed under the knee, the foot turned
in as much as practicable, and directions given to remain as
quiet as possible.

The next day I called, found the symptoms as before, ex-
cept a greater shortening of the affected limb.   The patient
feeling unwilling to consider it so serious an accident, and
submit to the long process of perpetual extension, was order-
ed to keep the limb on the bolster as before directed, and
wait a few days to make up his mind, and see the effect that
a little more time would have upon his symptoms.   The fifth
day after the accident I was called in, and found the limb
contracted about 2 1-2 inches.   It could readily be brought
down by gentle extension to its natural length, but when
this was removed, it was immediately retracted with a slight
jerk, and an increase of pain.   The pain was very much in-
creased when the limb was rotated inwards; very little swell-
ing about the hip, and no crepitus could be discovered.   I
was now requested to do something more efficient, provided
I could obviate the difficulty of breathing, which was very
great at times when the body was in a recumbent posture.
An apparatus was constructed and applied which answered
every purpose, and at the end of three months produced a per-
fect cure, except the most trifling eversion of the foot, which
the patient attributes to his own imprudence, as he frequent-
ly removed the lateral compresses to ease the pain in the
groin.   It consisted of two splints extending from 1 2 inches
below the feet to the spine of the ilium ; they are excavated
at their upper extremities, where they pass the trochanters,
and gains cut to be received into pockets hereafter to be de-
scribed.   The splints are to be about eight inches wide and
one in thickness, and are fastened together at their lower ex-
tremities by a cross-piece, about 3-4 their width, through
which passes a screw to be fastened to a slider or foot piece,
which can be brought down or carried forward by turning
the screw.   A gaiter is applied to the affected ancle, and at-
tached to the slider, also a roller is passed about the limb
above the knee, with pieces of tape extending to the slider
to be fastened to it if necessary.   The extension is made by

turning the screw backward, which brings down the slider,
and with it the foot. The points of counter-extension are
the ossa ischii and spine of the ilium, but principally the for-
mer. A girdle four inches in width passes about the pelvis,
and is confined at its anterior part with straps or buckles, at
the sides of which are two inverted pockets to receive the
gains cut in the splints. Two straps of suitable width, lined
with buckskin, and stuffed with curled hair, are attached to
the back part of the girdle about seven inches apart, which
are to pass over the tuberosity of the ossa ischii, and be
buckled to the girdle within about six inches of each other.
A cross bar is generally necessary to produce lateral com-
pression, or a piece of tape will answer a very good pur-
pose.

The patient is put upon his back, each limb is placed up-
on a bolster of hair or chaff extending its whole length, with
a small one under the knee of the affected limb ; the splints
are received into the inverted pockets, with suitable side bol-
sters to keep the foot and knee sufficiently turned inward ;
the foot is confined as before mentioned, with a cushion or
bolster to be placed between it and the slider. If the foot
do not turn sufficiently inward, a handkerchief is passed about
it, and confined to the opposite splint. In some cases it is
necessary to guard the heel, lest it slip inward and turn the
toes out : this is easily avoided, by a perpendicular splint
placed on the inside of the foot, and supported by a brace
from the opposite splint. After this apparatus is applied with
suitable dressings to keep down the inflammation, we have
only to turn the screw backward to bring the limb to its
natural length. By comparing the knees and internal mal-
leoli we may judge correctly when suitable extension is made.
When this is effected, the slider is to be kept from moving
by small pins passing through the splints. Lateral compres-
sion may be carried to any extent by the cross bar at the
upper extremities of the splints. By loosening the girdle a
very little, and turning the screw forward as the patient is
raised up, he may be placed in almost a perpendicular posi-
tion without changing the position of the fractured extremi-

ties.   As he resumes the recumbent posture the screw is to
be turned back, that the extension may be uniform in all po-
sitions of the body.

The difficulty of keeping up perpetual extension in frac-
tures of the neck of the femur, and the uncertainty of bony
union, have induced many to lay aside all manner of splints
and treat their patients in the most simple manner.

The objects to be derived from every apparatus should be,
to keep the limb of its natural length and shape, render the
counter-extension as mild as possible, by extending it over a
large surface, maintain a perfect coaptation of the fractured ex-
tremities in every position of the body, and admit of suitable
dressings to keep down the inflammation, and other variations
to render the condition of a long cure less tedious.

Let us see how far the present splint answers these im-
portant indications ; and, 1st. If the several parts of the
apparatus be perfectly adjusted, it is impossible that perpe-
tual extension should not be kept up, as there is no chance
for the limb to be drawn up, because the counter-extension
is made at fixed points.   Should there be the least contrac-
tion of the limb, which may be discovered by comparing the
internal malleoli, and the knees, it may be corrected imme-
diately by a partial turn of the screw; therefore, as it relates
to perpetual extension, the present apparatus appears to be
almost or entirely perfect.

2dly.   The counter-extension is divided in relation to
splints in common use as one to two ; and furthermore it may
be entirely removed from the ischii by fastening the slider to
the foot of the bed, loosening the thigh straps, and raising
the foot of the bed to an angle of about 20 or 30 degrees.
In this manner the weight of the body produces the counter-
extension, and the slider being fixed, the extension.   Inter-
vals of perfect ease may be safely allowed, as it relates to
the irritation from the counter-extending straps, and afford an
opportunity to apply suitable lotions to the highly irritated
skin in and about the groin.

3dly. Lateral compression is easily made by the cross bar,

and cushions placed between the splints and the trochanters, and can be carried to any extent whatever. This is very important in all cases. The limb may be brought down its natural length, and still the bones be so separated as to have a ligamentous union, or at least a protracted cure. When the fracture is within the capsular ligament, the inflammation is attended with an effusion of serous synovia, which produces sufficient distension to separate the broken extremities, unless we make proper lateral compression and apply means to reduce its secretion. It is believed that in most cases of fracture within the capsular ligament, lateral compression does not receive sufficient attention. If it be sufficiently kept up, the fractured extremities are held in such a position that when the body is raised, the head of the bone does not move with the pelvis, but remains in its natural position, whereas if the broken extremities were not kept in perfect contact it would be carried along by every movement of the pelvis, and thereby prevent bony union.

4thly. No apparatus can be contrived which will admit of dressings being applied to the affected limb to keep down the inflammation more perfectly than the present. From the reasons above stated it appears very evident that every means should be adopted to prevent inflammation, and particularly immediately after the accident has happened.

5thly. This apparatus admits of extensive motion of the body without endangering a displacement of the fractured extremities. The patient may sit in any position from an erect to a recumbent posture ; and by barely having an assistant partially to turn the screw, either backward or forward to suit the position of the body, he may help himself when he uses the bed-pan, and change his bed when necessary with perfect safety. After the extension has been kept up for some weeks, it is perfectly safe to remove it in part by turning the screw forward ; should we observe the least inclination in the limb to contract, we have only to turn it back again, and all will be brought into its proper position. Little variations and attentions of this kind will very extensively ameliorate the condition of our patient, and render his situation quite comforta-

ble, compared to the inhuman course which is sometimes adopted.

This apparatus appears to be well calculated for the treatment of most oblique and troublesome fractures of the femur; and is so simple in its construction, so perfect in its application, and uniform in its results, as to render every physician and surgeon completely master of these important injuries.

It has ever been an object in surgery to treat successfully oblique and troublesome fractures of this bone. The many invalids with whom we daily meet, with shortened limbs, and everted feet, clearly demonstrate that the science of surgery has not arrived at its highest state of perfection. Improvement succeeds improvement, and it is confidently hoped that the spirit of inquiry will not subside, until the best means shall be devised in the treatment of oblique fractures.

The present apparatus seems to embrace many of the principles of the splint recommended by Boyer, but it appears to have many advantages over his; the counter-extension is over a greater surface, the lateral compression is more perfect, and it will admit of movements of the body and other variations which his will not. Desault's splint is very objectionable, particularly for fractures of the cervix femoris; and notwithstanding the improvements it has received from our countrymen it appears to be illy calculated to answer all the important indications which attend troublesome fractures. The inclined plane is still more objectionable than any apparatus now in common use, and can never be supported upon scientific principles, or practical application. It is only calculated for transverse fractures, and almost universally produces a shortening of the limb in oblique fractures. The simple splint invented by Hagedon appears less objectionable than any one before mentioned. Mr Samuel Cooper observes, 'As soon as this simple but efficient apparatus is at all known in Europe, I have no doubt that it will here be considered, by every impartial judge, as the very best contrivance, not only for fractures of the neck of the femur, but also for all oblique and troublesome fractures of this bone.'

It is not a little surprising, that some of the first surgeons

of the present age, should lay aside all kinds of apparatus in fractures of the cervix femoris within the capsular ligament. The reasons which are urged to defend this practice are, 1st, the difficulty of making perpetual extension ; 2dly, the difficulty of keeping up lateral compression ; and, 3dly, that bony union never takes place when the fracture is within the capsular ligament. That perpetual extension is practicable, cannot be denied by any one who will candidly examine the apparatus which has been recommended, and reduce it to practical application. Lateral compression also may be carried to any extent that the patient will bear, or the nature of the accident require. If the case be attended with considerable inflammation, in consequence of the violence of the injury, I am well aware there will be deposited within the capsule of the joint a super-abundance of serous synovia, sufficient to separate the extremities of the fractured bone ; but if the inflammation is attended to early, before it has resulted in an increased secretion ; if we adhere strictly to the antiphlogistic course ; bleed freely immediately after the accident ; apply suitable topical applications about the joint ; and at the same time make moderate lateral compression with the cross bar, as before mentioned ; it is believed we shall obviate all the difficulty arising from this source, and keep the fractured extremities sufficiently in contact to admit of bony union.

More weight ought to be given to the third objection ; but before I can subscribe to an opinion that directly leads to inefficient practice, I must question a little the validity of the evidence on which it is founded. It is stated ' that the neck and head of the bone are supplied with blood from the periosteum of the cervix, and the reflected membrane which covers it ; and that when the bone is fractured, if the periosteum be torn through, and the reflected membrane broken, to which there can be but very rare exceptions, all the means of ossific action are, in consequence of such fracture and laceration, necessarily destroyed in the head of the bone.'

Anatomists generally agree, that the whole cavity of the joint is surrounded with the synovial membrane ; that it is reflected over the head and neck of the bone ; that the bone is

kept in its proper place by the influence of strong ligaments; that the periosteum does not cover the head of the bone, nor the neck of that portion which is within the capsular ligament ; that the vessels which enter the synovial membrane, and go to form the round ligament and nourish the head of the bone, are reflected from the acetabulum over the round ligament to the head of the bone, as well as from the neck of the bone, and that they inosculate with each other. Now in fracture of the cervix femoris, the reflected membrane is broken, but the means of ossific action cannot be destroyed, as the head of the bone is nourished from vessels that pass from the acetabulum over the ligamentum teres, which keeps up its vitality. The same process which forms the bones in the fœtus, promotes their growth and hardness, is carried on to unite them when they are fractured. This process is retarded or facilitated according to circumstances. The situation of the fracture may render it very slow, or old age and an impaired constitution, may entirely suspend it, when the fracture is in parts endowed with a low degree of sensibility and action ; but in a good constitution, when the broken extremities can be reduced and kept in perfect apposition, it very readily takes place.

If parts destitute of periosteum cannot be united, we are led to inquire by what action the extremities of several of the bones are formed, as the femur, olecranon process of the ulna, and scapular extremity of the clavicle ? &c. Does not the same action produce the extremities of these bones, that forms the other parts, differing only in degree, thereby requiring a longer time for the deposition of bony matter ? and will it not as certainly unite them when they are broken ?

If parts entirely separated from the system, as the nose, ears, and fingers, can be united and do well; if the spur of the cock can be transplanted into the comb, and thrive ; is there any inconsistency in believing that in fracture of the cervix femoris there remains sufficient vitality and natural action in its extremity to repair the injury ?

The experiments which are adduced to prove that bony union does not take place when the fracture is within the

capsular ligament, do not appear at all conclusive; not one is presented where the fracture was properly reduced, and the broken extremities kept in perfect apposition for a sufficient time to admit of ossific union; therefore there is no wonder that ligament only should be produced. It is a difficult, if not an impossible experiment, to produce a transverse fracture of the cervix femoris in an animal, and keep the extremities in complete apposition during a long cure. Such experiments cannot be treated upon the correct principles of surgery, and therefore ought not to be adduced to establish a general principle.

It is proved by actual experiment, that longitudinal fractures of the cervix femoris readily unite; and well they may, as the fractured extremities are kept in perfect contact,—whereas in transverse fractures the bones are separated, and thereby suspend the ossific action until they are brought in contact and kept in perfect apposition; unless this can be effected, the ossific action is destroyed, and ligamentous union is the consequence. It cannot be expected that parts possessing so low a degree of vitality and action as the head and neck of the os femoris will unite when broken, unless treated in the most perfect manner; it requires a long time for them to unite, and slight causes will entirely suspend the deposition of bony matter; but it is believed that the situation, structure, and action of these parts do not forbid a perfect cure, when the accident occurs under favourable circumstances, and is treated correctly.

Surgery is a progressive science, and requires only the spirited exertions of its members to reduce it at least to no ordinary degree of perfection. The blandishments of theory which have so extensively retarded its improvement, have yielded in a good measure to established principles deduced from the observation and collection of many important facts. It is only by deductive reasoning that medical and surgical literature has been rescued from the dark ages of ignorance and superstition, and placed upon its present elevation; but notwithstanding its highly cultivated state, there are many disputed questions to settle, and improvements to make,

which require much observation and attention. It is highly important that practical errors should be corrected, and our science enriched by the observations of all its active members. The progress of truth is often slow, but no less certain; a variety of causes may conspire to retard it; but since the latent energies of the mind are brought to bear upon all practical subjects, and demonstration made the basis of physiological observations, it is confidently believed that the clouds of error and false opinion will be soon dissipated, and that the truth of philosophy, and the light of research will establish the principles of a correct practice.

Lyndan, July 20, 1827.

XIV.   *A Case of Hydrops Capitis.* Communicated for this Journal by RICHARD HAZELTINE, M.D.

WEDNESDAY morning, May the 9th, 1827, I waited on Mrs K. of this town in her third parturition. I had waited on her at her two former ones. Her first and second labours were comparatively easy and expeditious; but the third, the one of last May, was somewhat protracted and severe; and it was thought proper, during its progress, to administer two doses, with a proper interval between them, of pulv. secal. cornut. The child at birth weighed ten and a quarter pounds; and it was immediately perceived by every one present, that its head was remarkably large. I now regret that I did not at the time take the measurement of the child's head; but I was willing *not to seem* to take much notice of the circumstance, knowing it would wound the mother's feelings. The child appeared perfectly well, for the most part, till within a few days of its death : it did not increase, however, in its body and limbs, as is common to infants of the same age; but its head increased much more in proportion, than other parts of it. It would lie and sleep perfectly easy for an immoderate length of time, were not its slumbers interrupted by the mother, for the sake of nursing and other necessary attentions. About a fortnight before the child died, it began to fail, as was evident by its expressions of distress

upon being taken from the cradle, and moved ; and by its
becoming more languid and feeble. The child died very ea-
sily and unexpectedly on the 9th of August last, precisely
three months old. The next day the head was opened and
examined, by Dr E. A. Lummus and myself. The circum-
stances were as follow :—The head was so much enlarged
that the common integuments were stretched upwards to such
a degree as to leave the eyes partly open, and the upper
part of the eyeballs exposed, and to make a vacancy between
them and the *conjunctiva reflexa* lining the upper eyelid.
The body measured twenty-seven inches from the top of
the head to the extremities of the toes, as it lay on the ta-
ble. The circumference of the head in its largest part, round
the forehead and hind head, was twenty-five and a half inch-
es : from the chin, extending round over the vertex, twenty-
six inches. It did not occur to us to measure from ear to
ear, over the largest part of the head; but the father had
taken that measurement five days before, and found it fifteen
inches and eight lines. The integuments were very tense
with the contained fluid ; the sutures were greatly enlarged ;
and the proportion of bony *paries,* compared to the whole
superficies of the head, was very small. A puncture was
made with a scalpel, in the posterior fontanel, near the edge
of the os occipitis. After the evacuation of most of the fluid,
its further discharge was interrupted by the interference of
something within the common integuments. This induced
us carefully to enlarge the puncture in order to ascertain
more particularly the precise situation of the fluid, and the
condition of the contents of the cranium. The external in-
teguments and the pericranium were easily and very distinct-
ly separable from each other ; and the former were first di-
vided nearly to the os frontis, without enlarging the punc-
ture in the latter : then, upon returning to the puncture to
ascertain more particularly what it was that prevented the
complete discharge of the fluid; it was found that the medul-
lary substance of the brain interposed ; and that the whole
of that substance was external to the contained fluid, and
completely surrounded it except at the basis of the cranium ;

the fluid itself being within the ventricles of the brain, which were thereby thus enormously distended, and their situations and relative proportions to the other parts of the brain, totally obliterated.   The substance of the cerebellum was *in situ*, very distinct and much diminished in size, owing to the pressure of the fluid.   The medullary substance of the brain, expanded as it was over the vast volume of fluid, was very soft, insomuch that upon being moved in the most gentle manner, it would scarcely retain any thing like a distinct form : its cohesion was almost as weak as that of a very loose jelly.   The bones of the cranium were remarkably flexible. There were no traces of inflammation, purulence or putrescence ; and the odour emanating from the several parts under inspection, was nothing different from that emitted from any ordinary healthy internal animal substance.   The fluid was nearly colourless, and without ropiness.   It was carefully collected as it was discharged, and was found to weigh seven and a quarter pounds : perhaps four ounces were unavoidably spilt.   All the parts, even those subjected to the operations of the knife, were bloodless ; there was scarcely blood enough found during the examination, to give a stain to any thing.

As this was the first case of the kind that I ever saw, I did not bestow much medical attention to the infant : and upon consulting some of my professional brethren older than myself, both in and out of town, upon the subject, I did not think that much, if any thing, could be done to advantage. In the earlier part of June, a solution of muriate of ammonia in vinegar, was applied to the head, for ten days or a fortnight ; and cathartic medicines, such as calomel, senna, sulphate of soda, &c. &c. were employed daily or every other day, for some time.   These medicines evidently produced a depressing effect on the system of the infant, as was manifest from the languor, diminished heat, moaning, and spasms, as the mother expressed herself, which succeeded ; insomuch that it was thought expedient to discontinue them ; especially as they appeared to produce no diminution in the size of the head.   How effectually a perseverance in the use of those medicines might eventually have contributed to the evacua-

tion of the fluid is uncertain ; but were another case to occur in my practice, I should, with the consent of parents, make a more efficient trial of them.

I find occasion for very few remarks on this case. In such cases a physician may well be excused for doing nothing, when his efforts are opposed, as they commonly are, by the sympathy of parents, and their unwillingness to incur expense without much prospect of advantage. Where, however, these obstacles do not oppose the endeavours of a physician, there seems to be sufficient encouragement given from the result of a few cases on record, to induce him to make trial of the means of art, and not wholly to abandon such patients to their fate.

Very interesting histories of this disease are to be found in the New-York Medical Repository, vol. 8, p. 38 ; also vol. 19, from the beginning, pp. 174, 296, and 405 ; and also in the Philadelphia Medical Recorder, vol. 4, p. 448.—Dr Good's account of the disease is the most satisfactory of any that I have read ;—' Study of Medicine,' vol. 4, p. 260, Boston Edition of 1823, Wells and Lilly. ' Hydrops Capitis.'

Lynn, Sept. 8, 1827.

Section II.—Selections, with Remarks.

XXVIII. *Account of the Medical Statistics of Paris. Translated for this Journal from the Journal des Progrès des Sciences et Institutions Médicales en Europe, en Amerique, &c. &c.*

From a work which has lately been published in Paris, upon the Medical Statistics of that city, by MM. Villermé and Benoiston, we make the following extracts :—

The total number of births registered at Paris during the century, from 1710 to 1810 is 1,931,897 ; and the total number of deaths is 1,935,579.

1st. During the first twenty years, the average number of annual births was about 18,000. It amounted to 18,500 during the twenty

following years; it increased to 19,000 from 1750 to 1770; to 20,000 from 1770 to 1790; and to 21,000 from 1790 to 1810.

2d. The consequences relative to the distinction of the sexes confirms what was already known. The annual number of male births has always surpassed that of female births. The whole number of non-abandoned children, registered from 1745 to 1821, is 1,121,402; viz. 573,700 boys, and 547,762 girls—the proportion being about 22 to 21.

3d. In comparing the number of deaths which occur among the two sexes, we find that the number of deaths among the male sex of Paris in the course of a year, surpasses that among the female sex. The whole number of deaths registered since 1745, is 1,548,-919; viz. 816,984 males, and 731,935 females; the proportion varying but little from 28 to 25.

4th. The tables contained in this work give us the means of comparing the number of marriages which take place annually, in proportion to the whole population, or more particularly in proportion to the number of births.

The whole number of births is 2,450,671, and the whole number of marriages is 584,792. The quotient varies but a little from $4\frac{1}{5}$. It offers the following variations:—from 1670 to 1700 the average number of births to each marriage was about $4\frac{4}{5}$; the result of five marriages being 24 children. This proportion has continually diminished since that time; it was $4\frac{2}{5}$ from 1710 to 1750; $4\frac{1}{10}$ from 1750 to the commencement of 1790; and since that time it has been about $4\frac{1}{10}$. The relative number of deaths has diminished as well as the relative number of births, and the order of mortality has become more constant.

5th. The tables in which are registered the number of deaths, give us the following results:—Towards the commencement of the eighteenth century the annual number of deaths has varied, in the term of eight years, from 13,000 to 29,000; and, in general, there were very considerable variations in the number of deaths about those epochs. The severe winters, the scarcity of food, the epidemics, the want of proper nursing and of remedies, the bad state of the hospitals and dwellings at that time, produced fatal and rapid effects.

The tables, exhibiting the annual progress of the population, furnish us the means of comparing the number of deaths which took place in the different seasons for a period of eighteen years. From

them we learn, that from 1670 to 1788, the mortality in the different seasons, commencing with those in which the number of deaths was the greatest, constantly followed the following order :—1st. Spring; 2d. Winter; 3d. Autumn; 4th. Summer. And for the months, it pursued the following order :—April, March, February, May, January, December, June, September, October, November, August, July. The respective number of deaths decrease in this order from April to July. The greatest mortality compared with the least, is 16 to 11. The following is the relative number of each month :—

April, 163; March, 158; February, 153; May, 149; January, 147; December, 130; June, 129, September, 125; October, 123; November, 122; August, 120; July, 116.

From 1810 to 1817 no statistical observations are recorded respecting the population of Paris. In 1817, however, a general census was taken of the population, which showed that that city then contained 700,000 people. From that time the population has constantly increased, and, in 1826, amounted to 890,000. From 1817 to 1821 the progress of the population is very minutely described by M. Villot, in a paper which he read before the Royal Academy of Medicine. We shall be able to present to our readers only the principal facts contained in this paper.

From 1817 to 1821, inclusive, when the city contained about 700,000 people, 1 of 50 died. It seems that some quarters of the city are more healthy than others, as is proved from the following variations which were observed in the twelve arrondissemens, or wards, into which the city is divided:—In the 2d. arrondissement, 1 in 62 died; 3d. arrondissement, 1 in 60; 1st. arrondissement, 1 in 58; 4th. arrondissement, 1 in 58; 6th. arrondissement, 1 in 54; 7th. arrondissement, 1 in 54; 5th. arrondissement, 1 in 52; 11th. arrondissement, 1 in 51; 10th. arrondissement, 1 in 50; 9th. arrondissement, 1 in 44; 8th. arrondissement, 1 in 43; and the same proportion in the 12th arrondissement. - This order having been constantly observed during five years, it is evident that it is the result of constant and uniform causes. But what are these causes? Until the present time, it has been thought that the local situation, as it regards the river Seine, the nature of the soil, its exposure to the east or to the west, that the heights which bound Paris on the north and south; that the water which the inhabitants use; the great number of people upon a small space of ground; neatness or filthiness; the quality of what is eaten and drank; are the principal causes which influence, in so remarkable a manner, the mor-

tality.   *M. Villermé thinks that the luxury, ease, and the misery of the inhabitants, in the different arrondissemens of Paris, and the conditions in which they are placed, are the principal but not absolutely the only causes, to which should be attributed the great differences observed in the mortality.*   It is the opinion of M. Villermé, that riches is the preserver of health.   This is true, in as much as riches furnish to man the means of preserving him from the deleterious influence of certain physical causes, but which would be completely false, if it is pretended by it to deny the influence of the above mentioned causes on the general mortality.   It is in this sense that the opinion of the author ought to be understood.   But, there are two kinds of riches; one kind which tends to damp the spirit of industry, and another which stimulates to exertion ; or, in other words, the rich are rendered either slothful or industrious by their wealth.   Among the former class the mortality is 1 in $55\frac{1}{2}$, and, among the latter, it is 1 in $57\frac{1}{2}$.   Thus, as it regards the first class, ennui, sloth, the strongest of all the passions, are the permanent causes of destruction, while, as it regards the second, physical and intellectual exertion contributes to the maintenance of health.   In fine, during these five years, the number of deaths which took place among males, compared with that which took place among females, was as $46\frac{46}{100}$ is to $53\frac{54}{100}$ in a 100.   In the hospitals, during this same period of five years, one patient out of every $32\frac{41}{100}$ died ; and, in examining each arrondissement in particular, it is found that the mortality is, in general, in an inverse ratio to the ease and luxurious mode of living of its inhabitants.   The births, during this period, have been 1 to every 34 persons.   The male births compared to female births, have been as 16 is to $15\frac{40}{100}$.   The mean number of still-born children was 61 in 1000 births throughout the city, and 33 in 1000 in the lying-in hospital.   The number of still-born male children was greater than that of still-born female children.

Of Deaths caused by the Small-Pox.—According to the observations made during the seven years from 1817 to 1823 inclusive, 4,238 individuals fell victims to the small-pox in Paris ; of whom 2,279 were males, and 1,959 were females.   The order of the months in which this disease was most prevalent and most fatal was the following, commencing with that in which the fatality was the greatest :—October, November, December, September, August, July, January, February, March, April, May, June.   As to the frequency of the small-pox in the different ages, no constancy has been observed.

Of Deaths occasioned by Diseases of the Chest, or by the *Asthma.
Pulmonary Catarrh, Peripneumony*, and by *Phthisis, during the years*
1816, 1817, 1818 *and* 1819.—During these four years 847 indi-
viduals were carried off by the *asthma*, 422 of whom were males,
and 425 females. The order of the seasons, in which the greater
number of deaths took place, was the following :—Winter, Spring,
Autumn, and Summer. The relative frequency of this disease, in
the different ages of life, pursued the following order :—From 60 to
70 years, 70 to 90, 50 to 60, 40 to 50, 90 to 100, 30 to 40, 1 to 10,
20 to 30, 10 to 20. It should be remarked, however, that, in the
present state of the science, many diseases differing in nature are
confounded with that of *asthma*. During the same space of time
5,833 individuals died of the *pulmonary catarrh ;* of this number
2,734 were males, and 3,099 were females. For this disease, the
order of the seasons was the same as that for the *asthma*. As it
respects ages, the following order was observed :—From 60 to 70
years, 70 to 90, 50 to 60, 0 to 10, 40 to 50, 30 to 40, 20 to 30, 90
to 100, 10 to 20. During the same four years, the deaths occa-
sioned by *peripneumony* amounted to 2,710 ; of whom 1,388 were
males, and 1,322 were females. The order of seasons is the
same as that of the two preceding affections. The following or-
der was observed as it respects the ages :—60 to 70, 50 to 60,
40 to 50, 30 to 40, 70 to 90, 20 to 30, 0 to 10, 10 to 20, 90 to 100.
During this period of four years 9,544 individuals fell victims to
pulmonary phthisis ; 3,965 of which number were males, and 5,579
were females. The order of the seasons is the following :—Spring,
Winter, Autumn, and Summer ; and that of the ages is from 20 to
30, 30 to 40, 10 to 20, 40 to 50, 50 to 60, 0 to 10, 60 to 70, 70 to
90, 90 to 100. Lastly, in 85,339 deaths which took place during
these four years, no less than 18,932 were caused by the four
above named diseases, or nearly one quarter of the whole number ;
a frightful result ; one which is calculated to arouse the medical
world to serious reflection.

*An account of the Insane Patients confined in the Hospitals of Bicê-
tre and Salpêtrière, during the years* 1815, 16, 17, 18, 19, 20 *and* 21.—
During these six years, the whole population of Bicêtre and of Sal-
pêtrière hospitals amounted to 17,231 ; 11,529 were received at
Salpêtrière and 5,702 at Bicêtre ; the former being a hospital for
insane females, and the latter for insane males. From whence it
seems, that the number of females who become insane is double

that of males. The reverse of this seems to have taken place in London; for out of 13,706 insane persons, who were received into Badlam-hospital in the term of forty years, 8,874 were males, and 4,832 were females. At Bicêtre, there remained, on the 1st of January of each of the six years, 3,939 insane individuals; 1763 entered during this time. Of this number, 1,558 were sent from the hospital, 690 cured, 170 not cured, and 698 who died in the institution. Salpêtrière contained on the 1st of January of each of the six years, 8,888 insane persons; 2,641 were received during this time. There went out of the hospital 2,227; 874 of whom departed cured, 118 not cured, 1,235 dead. In every 100 insane persons remaining at Bicêtre on the 31st of December, $20 \frac{11}{100}$ were considered curable, 25.66 incurable, 51.05 tranquil, 3.18 raving. At Salpêtrière, in every 100 persons, 56.12 were considered as curable, and 43.88 as incurable. The gentleman who made these observations has considered the causes of insanity, and has divided them into physical and moral. The physical causes of insanity of the males, or those who inhabited the Bicêtre hospital, are the following:—1st. drunkenness; 2d. effect of diseases; 3d. epilepsy; 4th. idiotism from birth; 5th. effects of age; 6th. various accidents; 7th. onanism; 8th. excess of labour; 9th. emanations from unwholesome substances; 10th. bad treatment; 11th. malformation of the cranium. The moral causes are presented in the following order, as causing insanity:—1st. Ambition; 2d. misfortune; 3d. chagrin; 4th. political events; 5th. love; 6th. religious fanaticism. At Salpêtrière, the influence of the above mentioned causes, commencing with those which have produced the greatest number of insanities, are thus arranged:—Physical causes; 1st. paralysis; 2d. critical period; 3d. effects of age; 4th. consequence of childbirth : 5th. disorders of menstruation; 6th. insanity from birth, or after the convulsions of infancy; 7th. effects of diseases; 8th. hysteria; 9th. hereditary affections; 10th. libertinism; 11th. drunkenness; 12th. epilepsy. Moral causes; 1st. chagrin; 2d. reverse of fortune; 3d. fright; 4th. religious fanaticism; 5th. disappointed love; 6th. anger. If, from the consideration of the physical and moral causes, we pass to the examination of professions, we find that at Bicêtre, of every 1000 insane male persons, 196.26 had exercised the liberal professions, 660.24 had devoted themselves to the mechanic arts, 66.93 had followed agricultural pursuits, and 112.31 were employed in various laborious occupations. At Salpêtrière,

of 1,000 insane females 93.17 had exercised the liberal professions, 592.93 had devoted themselves to the mechanic arts, and 313.90 had been domestics, and employed in different occupations.

Of assistance given to Drowned Individuals within the limits of the city of Paris.—From 1819 to 1823, 1,403 drowned persons were assisted. Of this number, there were 1,086 males, and 317 females; 378 of this number received timely assistance and were saved. On searching into the causes of the drowning of so great a number of individuals, it has been found that of this whole number, 533 individuals drowned themselves voluntarily, 166 were drowned while bathing, 245 accidentally, and 449 without any known cause.

Of the Medical Statistics of the Hospitals and Hospices, or private institutions for the sick.—From 1817 to 1823 the number of patients in both of those classes of charitable institutions varied at different times. In the hospitals it varied from 39,803 to 47,393; and in the *hospices* from 16 to 18,000. As it regards the mortality, the variations were far less remarkable. In the hospitals, from 1817 to 1820 the mortality was 1 in 7 and a fraction. And from 1821 to 1823 it was 1 in 8 and a fraction. In the *hospices*, the mortality varied more. In 1817 it was 1 in 11.39; in 1818, 1 in 10.79; in 1819, 1821, 1822 and 1823, 1 in 6 and a fraction; and in 1820, 1 in 5 and a fraction. The number of *foundlings* has varied, from 1817 to 1823 from 17 to 18,000, or thereabouts; and the mortality has varied from 1 in 3.81-100 to 1 in 5.39. But, if we compare the state of these charitable institutions in 1786 and 1822, we see that, at the former epoch, 28,855 indigent persons, 17,692 of whom were children, were aided and supported by the different charitable institutions, whilst, in 1822, 35,630 indigent people, 20,545 of whom were children, received aid. In 1786, at Bicêtre and at Salpêtrière, one bed was allowed for two patients. The hospitals, Hotel-Dieu and Saint-Louis, at this period, contained together only 538 small and 987 large beds, in all 1,525, to accommodate 2,500 patients. In some years previous to the year 1786, the number of patients in Hotel-Dieu amounted from 4 to 5,000; consequently four and sometimes five sick persons were obliged to occupy one bed, and, at some critical times, even eight were crowded into one bed.

We shall terminate this article with a single remark respecting the succours given to the poor at their own dwellings. In 1791, a

period when the population of Paris amounted to about 500,000 souls, 118,784 individuals, that is to say, more than one-fifth of the population received aid from the public at their houses; and in 1823, when Paris contained more than 800,000 souls, the number of indigent who received succours at their houses, amounted only to about 60,130; and this estimate even, is most probably too high. But, supposing it to be a true one, does it not give a complete refutation to the sophisms of those who are continually lauding the happiness of the people in past times, and who would make us believe, that for forty years past the whole nation has been poor and wretched?

XXVIII.   *On the Influence of Atmospheric Pressure on the Circulation of the Blood : being a Reply to the Observations of* Dr Arnott *on that subject.*   By James Carson, M.D. &c. &c.

[We introduce this paper as being closely connected with the review of Dr Barry's work on the circulation of the blood, in this number.   It is a communication from the author of the treatise several times noticed in that review, and was written in reply to the article referred to in a note at its termination, p. 371.   Although written in reply to Dr Arnott, there marks will be found equally applicable to some passages in the review.   Those of our readers who may be interested in this subject, will no doubt wish to peruse whatever may be now advanced in defence of his opinions by the physiologist, who seems to have been the first publicly to teach the dependence of the motion of the venous blood on atmospheric pressure.]—Ed.

In the Number of the London Medical Journal for June, 1827, there appears an extract from a work on Physics, lately published by Dr Arnott.   As this selection from Dr Arnott's work appears to be the voluntary act of the editor of the Journal, and is introduced with an observation expressive of his concurrence with the argument contained in it, he will be disposed, I am sure, to give an early place to the following remarks.

In the extract it is stated that Dr Carson and Dr Barry had

wasted a great deal of ingenuity in attempting to prove that the blood is returned to the heart by atmospherical pressure.

The errors into which Dr Barry and myself have fallen, Dr Arnott very delicately and with kind indulgence attributes not to our want of talents, but to a deficiency in our education. As it appears that an alarming number of other medical gentlemen, also not deficient in talents, had adopted the same sentiment, Dr Arnott takes this opportunity of making some very modest, and I have no doubt very useful, observations on the deficiency of the education generally of medical students. The branch of education of which Dr Arnott laments the deficiency, is evidently the mathematical sciences. For high attainments in these sciences, I have ever felt the greatest veneration, not unaccompanied with a wish and some efforts that these should be my own ; and I am ready to allow that, in the course of my physiological inquiries respecting the motion of the blood and respiration, I have had many occasions to lament that these efforts were not more successful. But their want of success is far from being acknowledged in the treatment of the subject discussed in this extract.

It has been observed that great progress may be made by some men, even in the higher branches of mathematics, without much expenditure of thinking. So long as these men are allowed to adhere to their *formulæ*, they will advance with great correctness and rapidity, but, if left a moment without their accustomed guide, they soon come to a stand, or deviate into bewildering errors. They are like a wagon in a rail-road : as long as the wheels of the wagon roll within the iron grooves of the rail-way, the machine proceeds with correctness, safety, and often with wonderful rapidity ; but, if the wheels slip out of their defence, the machine either stops entirely, or, if it moves, is soon overthrown, scattering its diversified contents in ruinous disorder along the plain. Dr Arnott would appear to afford an illustration of the correctness of this observation. But let it be understood that I am drawing this conclusion from the extract alone which the editor has published, as I have not seen the rest of that gentleman's work, which may in other articles be deserving of the praise bestowed upon it. But to proceed to the Doctor's argument. Any person, the learned Doctor observes, who understands the nature of a domestic pump, must be satisfied that blood cannot be raised by suction through pliant vessels like the veins, as the sides of the vessel will be

pressed together by the atmosphere, or will collapse, and thus an end will be put to suction.

When engaged in the inquiry into the causes of the motion of the blood, and looking out for objections which might be urged against the doctrine, that I might prevent them by an anticipated reply, this occurred as one that would most readily be made, and one to which careless and superficial reasoners would appear plausible and of great weight. The objection was nevertheless repeatedly urged, and in particular by Dr Wilson Philip, I think, in the Medical and Chirurgical Transactions. To Dr Philip I took occasion to repeat my reply in a Treatise on the Motion of the Blood in the Head, published in the Edinburgh Medical and Surgical Journal, and was in hopes that this reply would have prevented the renewal of the objection. In this, however, I have been disappointed. As this reply has either been unobserved or deemed defective by the learned author of the Treatise on Physics and the editor of the London Journal, I am compelled to resume the subject; and, as I hope it will be for the last time, will go into it to greater extent.

If the fluid to be raised by a pump be of a greater specific gravity than the fluid through which it is to be raised, it is necessary that the stem of the pump be so far incompressible as to resist a greater pressure than that supplied by a column of fluid of the height of the pump, and of a weight measurable by the difference of the specific gravity of the fluid to be raised and of that through which it is to be raised. In the case of raising water through the medium of air, such a pump is necessary. Any attempt to raise water in this way through the atmosphere in easily compressible tubes will necessarily fail, in consequence of the collapsing of the tube. But the case is very different if the fluid to be raised be of the same specific gravity with the fluid through which it is to be raised : for instance, if water is to be raised through water, a very limber and pliant tube will be sufficient for the purpose, as the pressure, in consequence of the equality of the gravity of the fluids, must be as great upon the internal as upon the external surface of the tube. According as the fluids to be raised exceed or approach to the fluids through which they are to be raised in specific gravity, in the same proportion will the stem of a pump of any given height require to be more or less unyielding. A tube with weaker sides will be sufficient to raise oil through air, than would be re-

quired to raise water to a given height through the same medium;
and a firmer tube will be necessary for raising mercury through
air, than what would be required to raise the same metal through
water to a given height. It is not simply, therefore, the removal
of the atmospherical pressure from the surface of the fluid to be
raised which regulates the degree of pressure sustained by the ex-
ternal surface of the pump, but it is that in conjunction with the
difference of the gravity of the fluids to be raised, and that of the
medium through which they are to be raised.

These facts, which (simple as they appear) are of the greatest
importance in our present inquiry, may all be proved by an easy
experimental process.   Take a very limber and pliant onion-stalk,
of a foot, say, in length, and insert one end of it into water, and
suck through the other end; the sides of the stalk will collapse,
and no water will reach the mouth.   But, if the stalk be sunk to
the top in water, and an attempt be made in that state to suck from
the upper end, the water will flow readily into the mouth, and the
sides of the tube will manifest no tendency to collapse.   The same
thing will occur in attempting to draw air through air, oil through
the medium of oil, or mercury through that of mercury.   In case,
in these last instances, the suction be made so that the fluid should
pass with great rapidity through the tube, the sides of the tube
may yield inwards to a certain extent, in consequence of the resist-
ance given to the passage of the fluid through the tube by the
friction between the sides of the tube and the current.   It plainly
follows that the force or the extent of the removal of atmosphe-
rical pressure required to raise fluids through tubes will be in
proportion to the difference between the specific gravity of the
fluid to be raised and that of the fluid through which it is to be
raised, the height being the same.   Greater suction will be re-
quired to raise mercury to the height of an inch through air,
than would be required to raise water to the same height in the
same medium.   Hence it follows that less diminution of resistance
will be sufficient to return the blood to the heart through the veins
of fishes, and the fœtus in utero, which are constantly immerged in
a fluid nearly of the same specific gravity with the blood, than in
those of the mammalia after birth.   The power derived from the
simple relaxation of the circular fibres of the heart, aided by the
elasticity perhaps of those fibres, will be quite sufficient to secure
the return of the blood to the heart in fishes and in the fœtus in

utero.   In animals so situated, any further aid from lungs would be superfluous, and is therefore not supplied.   For the same reason, no obstruction is to be apprehended to the return of the blood from the collapsing of the sides of the vein.   One would infer from this doctrine, that fishes are little subject to inflammation.   A great deal of the advantage derived from sea-bathing might be accounted for in this principle, and bathing, or more effectually perhaps the diving bell, might be extended with advantage to many diseases, in which the freedom of the circulation was affected.   In the mammalia, after birth, the veins are placed in a situation not altogether the same with that of those vessels in fishes and in the fœtus in utero; though, even in the former, these vessels may be said to be immersed in a fluid, or in a substance charged with a fluid, of the same specific gravity with that of the fluid which it is their office to transmit.

The veins of the mammalia can neither be said to be in the situation of these vessels in fishes or in the fœtus in utero; nor are they in the state of vessels immersed in air, or in a fluid of a specific gravity very different from that of the fluid they contain. They are in a middle state, but one which approaches nearer to that of the same vessels in fishes, than that of a tube solely surrounded by air.   The heart, aided probably by the arteries, transmits blood to all the extreme arteries; by which the most extreme parts of the system are pervaded.   By the rapidity with which these transmissions are made, the system may be said to be kept constantly full, although its sides are compressible and surrounded by air.   The animal system may be compared to a vessel of fixed dimensions, of the same size and shape, containing solid materials of various dimensions and forms, frequently hollow, while all the cavities and interstices are filled with blood, watery fluids, or air under a considerable degree of compression, excepting the air in the bronchi, which may be considered as exterior to the vessel. A vein traversing a fabric of this description is nearly, though not altogether, in the same situation with a hollow tube fully immersed in any homogeneous fluid.   The sides of the vein, when blood was attempted to be transmitted through it, might have some tendency to collapse.   But this tendency is counteracted by a variety of causes.   The vein is not bare, but has a space assigned to it fitted to its bulk with its ordinary charge of blood.   This space it must always occupy, or leave a space to be occupied by some other

substance, more or less fixed.   It is connected throughout its course
with other substances, which, by collapsing, it must draw from
other connexions.   The arched structure, particularly in the capil-
laries and smaller veins, where the curvature of the arches is great,
and which often run upon surfaces in contact with air, enables it to
resist considerable external force.   On the supposition that blood
is returned to the heart by atmospherical pressure, a considerable
force must be required to remove the requisite degree of pressure
from the end of the tube through which the blood is to be dis-
charged into the heart; but by no means so great a force as would
be required to raise water to an equal height through the air.   In
the case of the mammalia after birth, simple relaxation of the cir-
cular fibres of the heart, aided, as that dilating relaxation may be,
by an elastic structure, might not be sufficient, a further aid is
afforded by the elasticity of the lungs.

But, says Dr Arnott, there are certain phenomena which show
that if it were possible to return the blood by suction to the heart
in this way, this, however, is not required ; and in support of his
assertion he adduces the operation of bleeding.   If the veins of
the arm are compressed by a ligature, the veins beyond the liga-
ture will soon be seen to swell, and, if the vein be opened beyond
the ligature, blood will flow with great force.   This force cannot,
he justly observes, be occasioned by suction.   If Dr Arnott had
perused with any attention my Treatise on the Motion of the Blood,
he would not have, I think, stated this objection.   I do not deny
that the force of the heart and arteries may be sufficient to move
the blood in certain circumstances through its whole course, but
maintain that this is not the force employed for that purpose by
nature.   Before the action or impetus of the heart and arteries
can affect the blood in the veins, it is necessary that the veins be
distended to that condition in which they possess the property of
rigid tubes.   Now, in the case adduced by Dr Arnott, in conse-
quence of the veins being rendered impermeable, and blood being
constantly poured into them by the arteries, they soon become
distended to their utmost capacity, and in that situation act like
rigid tubes.   A quantity of blood being thrown into them in this
situation at one end, an equal quantity must be discharged by the
same force from the other end.   In the ordinary circulation, the
veins are by no means dilated to this extent.   Therefore, however
powerful the action of the heart and arteries may be, the blood

cannot be transmitted through the veins by this action. Allow me to ask, in my turn, one question of Dr Arnott: When a vein is opened in the arm or leg, without the veins above the opening being compressed by ligatures, why is not blood discharged from these openings ? The blood certainly, on the supposition of its being propelled by a force *a tergo*, would find its way rather out of the opening, than proceed in the vein, carrying before it a column of blood one or two feet in height.

It is not a little surprising, and I think indicative of bad generalship, that, in attempting to refute the doctrine that the blood is returned to the heart by atmospherical pressure, Dr Arnott should have reference to the explication of phenomena. It is a matter of surprise to many physiologists of the present day, and I doubt not will be so to many more in another age, that such reluctance has been shown to abandon doctrines with which the greatest ingenuity is incapable of reconciling the most common occurrences, and such hesitation in embracing an hypothesis by which all the phenomena referrible to it admit of an easy and satisfactory explication. The single fact that little or no blood flows from a wound made in a vein in the leg or arm, is sufficient to overturn on this point the doctrine of Harvey, which maintains that blood in the veins is returned to the heart by the projectile power of the left ventricle alone, and which subsequent physiologists have not improved by enlisting the vibrations of the arteries in aid of the power of the heart. Dr Arnott denies that Dr Barry's experiment with cuppingglasses, by which that physician stopped the progress of poison introduced into a wound, is any proof of the influence of suction in the motion of the blood. It appears, however, to me, that if a substance be stopped in its progress by removing from it a share of atmospherical pressure, that atmospherical pressure must have some part in the process allowed to be made by that substance, when no share of that pressure is withdrawn. Dr Arnott seems displeased that Dr Barry should attempt to erect a system of practice upon the doctrine of the blood being returned to the heart by atmospherical pressure. I trust, however, that Dr Barry will not be deterred from his pursuits by menaces, I may call them, of this nature. There is not an object, in my opinion, more worthy of the talents of Dr Barry, nor one by pursuing which he can render greater services to mankind, than by a careful application of the doctrines which, with some modifications, he has espoused in the

complicated phenomena of disease, and of subjecting the medical practice to the same, as I think, infallible test.

What obscurity still hangs over the doctrine of inflammation? How disappointing, how contradictory, and frequently how pernicious, the treatment of it! If the hypothesis that the blood is returned to the heart by atmospherical pressure be true,—and stronger arguments must be produced than any which have hitherto been urged before I can have any doubt of its truth,—the practice hitherto employed in all diseases depending on a derangement of the circulating fluids must have been either empirical (by which I mean, derived solely from experience,) or founded on an erroneous hypothesis.—*London Med. and Phys. Journal.*

Section III.—Intelligence.

JOHN GORHAM, M.D. has resigned the Professorship of Chemistry in Harvard University.

XIII. *Medical Lectures, Boston. Time changed.*

MEDICAL LECTURES of Harvard College will begin the *Third Wednesday in October*, at the Medical College, Mason Street, Boston, at 9 o'clock, A.M. The time having been changed from the *Third Wednesday in November*, when they formerly began.

WALTER CHANNING,

Dean of the Medical Faculty.

Anatomy and Surgery,	Dr Warren.
Theory and Practice of Physic,	Dr Jackson.
Midwifery and Medical Jurisprudence,	Dr Channing.
Materia Medica,	Dr Bigelow.
Chemistry,	Dr Webster.

XIV. *Boylston Prize Questions.*

THE committee upon the Boylston Prize Questions, at their meeting in August last, assigned the annual premium to USHER PARSONS, M.D. &c. of Providence, for his Dissertation on the Diseases of the Periosteum. This dissertation, by vote of that committee, has been published in the present number of this Journal.

ERRATA.

Page 384, lines 17 and 11 from the bottom for *opposition* read *apposition*.

,, 385, the marks of quotation should be omitted.

,, 387, for *suppuration* read *pus*.

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